



SCIENCES:

SUPPORTING a
COMMUNITY'S
INFORMAL
EDUCATION
NEEDS—
CONFIDENCE &
EMPOWERMENT in
STEM (Science, Technology,
Engineering, and Mathematics)



The Nature of Community



ACKNOWLEDGEMENTS

Special thanks to SCIENCES partner Eden Place Nature Center and its founders, Michael and Amelia Howard for their partnership and friendship in taking the SCIENCES journey of community and learning with us. We thank the children, adults, parents, educators, families, and community leaders who participated in programs. Heartfelt appreciation is extended to Canaryville Library, Bishop Shepard Little Memorial Center, I Grow Chicago, Hendricks Elementary Community Academy, and The Salvation Army for bringing youth participants to our programs.

We acknowledge the Chicago Police Department for providing police presence at and participating in our programs and celebrations.

Our heartfelt appreciation to the Chicago Zoological Society staff members past and present for their vision for and devotion to this project and to the Fuller Park community.

Thank you for the work of University of Illinois at Chicago Research Assistant Professor Dean Grosshandler, Ph.D., SCIENCES co-Principal Investigator, and ExposeYourMuseum's Kate Livingston, SCIENCES project external evaluator.

Our sincerest gratitude to the National Science Foundation (NSF) for its support of the SCIENCES project.

Finally, our deepest thanks to Chicago's innovative and tireless conservation leaders, emerging and experienced alike, acting on behalf of the health of children, wildlife, and the environment. You remind us that we have the power to connect nature's importance to our everyday lives and the responsibility to protect it.

Sarah Breen Bartecki, MBA

*Chicago Zoological Society Senior Vice President
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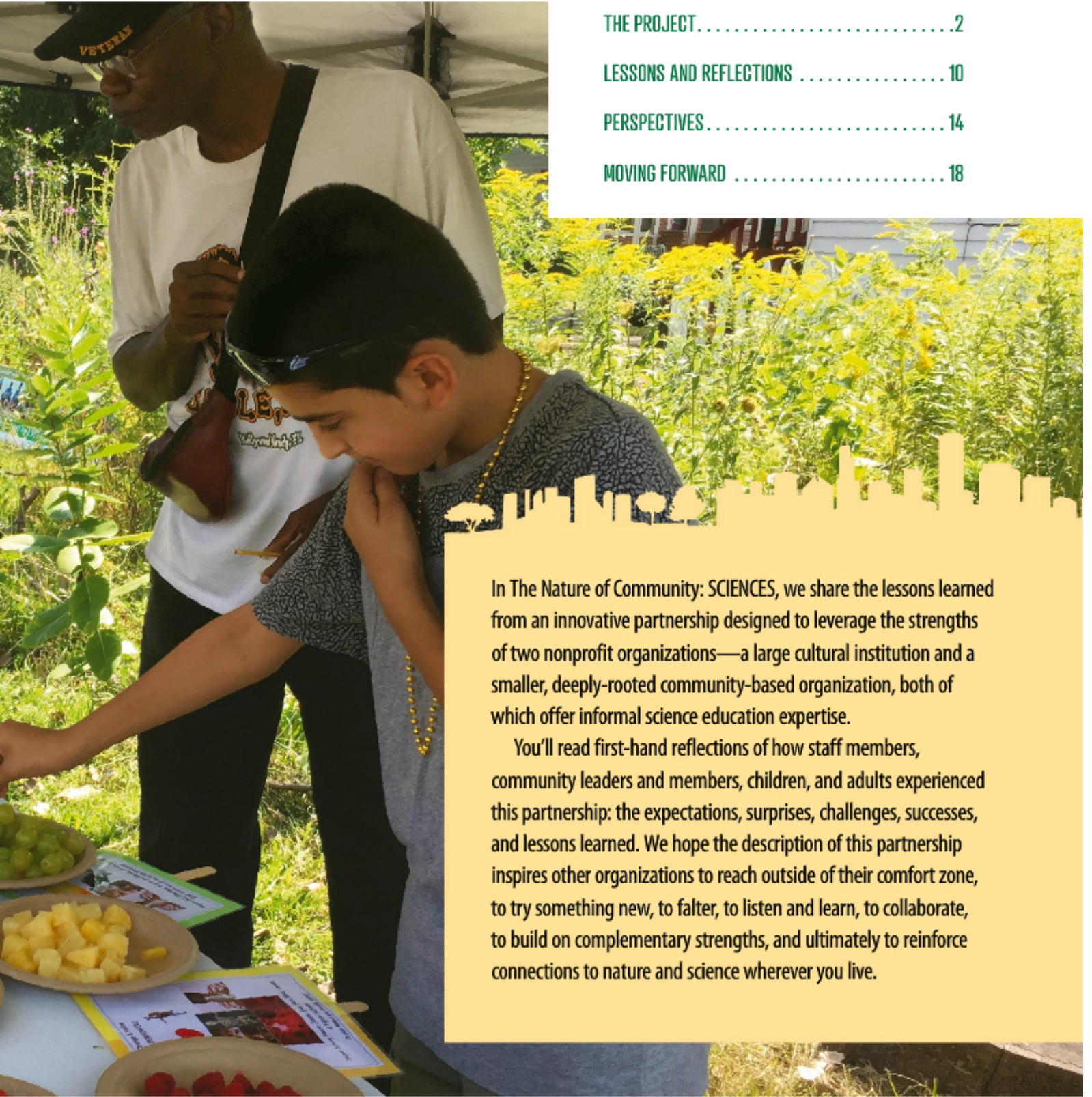
Growing the Future Together as a Community

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In *The Nature of Community: SCIENCES*, we share the lessons learned from an innovative partnership designed to leverage the strengths of two nonprofit organizations—a large cultural institution and a smaller, deeply-rooted community-based organization, both of which offer informal science education expertise.

You'll read first-hand reflections of how staff members, community leaders and members, children, and adults experienced this partnership: the expectations, surprises, challenges, successes, and lessons learned. We hope the description of this partnership inspires other organizations to reach outside of their comfort zone, to try something new, to falter, to listen and learn, to collaborate, to build on complementary strengths, and ultimately to reinforce connections to nature and science wherever you live.

A young person with dark, curly hair, wearing a blue hoodie, is focused on examining a large, green, round melon in a garden. They are holding the melon with both hands. In the background, another person with glasses is partially visible, also looking at the melon. The garden is enclosed by a white picket fence, and a red lattice fence is visible to the left. A house and trees are in the far background.

THE PROJECT

THE PARTNERS

The Chicago Zoological Society and Eden Place Nature Center partnership precedes the launch of SCIENCES. The two institutions have worked together since 2006.

Chicago Zoological Society (czs.org)

The Chicago Zoological Society is a private nonprofit organization that operates Brookfield Zoo in Brookfield, Illinois on land owned by the Forest Preserves of Cook County. An Association of Zoos and Aquariums (AZA) accredited institution, the mission of the Zoo is to inspire conservation leadership by engaging people and communities with wildlife and nature. Brookfield Zoo is home to just under 5,000 animals representing nearly 560 species. An average of two million guests visit annually. In addition to its animals and habitats, the Zoo offers a wealth of education programs for learners of all ages that contribute to the Zoo's conservation mission, providing a continuum of science, technology, engineering, and math (STEM) programs that connect children and families with science and nature, not only at the Zoo, but where they live. The Zoo's annual operating budget is \$60 million.

Eden Place Nature Center (edenplacenaturecenter.org)

Eden Place Nature Center is an urban oasis—encompassing an area of one city block in Chicago's Fuller Park neighborhood. Eden Place was founded in 2003 by a local family. The site was a former illegal dump, and Eden Place was established following the discovery that the neighborhood had the highest lead level in Chicago. The nature center, created through community action, is a center for hope, growth, and change in Fuller Park. The award-winning program run by Fuller Park Community Development Corporation has an operating budget of less than \$400,000. Eden Place is dedicated to growing opportunities for learning, recreation, health, and employment in the areas of nature conservation and urban agriculture, offering an array of programs to Fuller Park residents and visitors.

Fuller Park is a less than one-square-mile residential and industrial region located on Chicago's south side. Ninety percent of Fuller Park's approximately 2,500 residents are African American. Half of Fuller Park's residents live below poverty level, and unemployment rates are around 35%. The area has one of the highest crime rates in the city. It is a neighborhood that is transient (residents move in and out after a short while), but, at the same time, generations of families have remained.

The University of Illinois at Chicago is the research partner on the SCIENCES project. The research team's mandate was to gain insights into the ways in which the SCIENCES learning model supported scientific literacy and agency within the community and how this model might be transferable to other informal science learning/urban community partnerships.





THE VISION

In developing the project, the partners agreed the vision was to support environmental conservation and lifelong, life-wide, and life-deep scientific learning.



Timeline

2013
September

Year 1

Planning and
networking

Year 2

Program
implementation
with *Pollinators
and Native Gardens*
as the theme

Year 3

Program implementation
with *Fuller Park Water—
A Shared Resource for
Healthy People, Plants,
and Animals* as the theme

Supplemental funding
received, enabling a third
year of programming in
the Fuller Park community

Year 4

Final year of programs
implemented with
*Nutrition and
Sustainability* as
the theme

Year 5

Chicago Zoological Society continues
programming through other sources
of funding, maintaining commitment
to community programming

Year 6

Project synthesis
and dissemination

2019
August

THE APPROACH

- Mobilize the strengths of the Chicago Zoological Society and Eden Place.
- Listen to community feedback.
- Network with community leaders, residents, and families in support of Eden Place's and the Chicago Zoological Society's shared goals.
- Adapt existing educational programs into a suite of environmentally-focused science learning opportunities for professional, student, and public audiences—in the Fuller Park neighborhood.
- Employ a holistic model, one that provides multiple touch points for science learning and environmental conservation action.



EDEN PLACE AND CHICAGO ZOOLOGICAL SOCIETY ASSETS

Each organization brought years of experience and key assets to the project.

Eden Place

Eden Place brought a unique neighborhood perspective combined with experience. “We’d been doing STEM programming, connecting families with nature for years.”

Eden Place Assets

- A thriving outdoor nature center where neighbors felt safe sending their children
- Established connections with community members
- Insight into the types of programming relevant to families living in an inner-city Chicago neighborhood
- Trusted and proven community care and leadership

Chicago Zoological Society

The Chicago Zoological Society brought decades of community outreach and educational programming experience.

Chicago Zoological Society Assets

- Field trips for school groups and education program participants to visit nature-based locations such as forest preserves and other area cultural institutions
- King Conservation Science Scholars, a career and college readiness programs for teen volunteers
- Educator professional development for teachers and informal educators
- Nature-based learning and education programs from ages one through eighth grade based in community neighborhoods



“Empathy for the natural world is a direct byproduct of spending time in nature. The Chicago Zoological Society is committed to broadening access to nature and wildlife, to a meaningful investment in communities, to serve, to provide opportunities for STEM learning and college and career readiness. For us, a partnership with Eden Place—an established community institution with a legacy for environmental education—was a natural. Our collaboration looks different today than it did six years ago, and it will keep changing. We are proud of SCIENCES and grateful for the opportunity to serve alongside Eden Place now and in the future.” — **Sarah Breen Bartecki, Chicago Zoological Society, Senior Vice President of Conservation Programs, Research, and Funding**



CONSIDERATIONS

At the project outset, SCIENCES was faced with two burgeoning realities: an unexpected land remediation and government funding challenges.

Land Remediation

Before it became Eden Place, the land was an illegal dump site. For years, it languished as such until Eden Place founder Michael Howard transformed it into a thriving nature center. After years of unsuccessful attempts to remediate the land, the city of Chicago decided to remove and replace the tainted soil. The site was excavated, mature trees were removed. The area was healthier, but now barren and in need of restoration.

Funding

In 2013, like many other organizations, nonprofit and corporate alike, Eden Place was still reeling from the effects of the 2008 economic downturn. Exacerbating the problem, from July 2015 through August 2017, the State of Illinois operated without a budget. This impasse was devastating to many nonprofit organizations that relied upon this funding to operate. It resulted in deep service cuts for many Illinois nonprofits, including Eden Place.



EDEN PLACE AND CHICAGO ZOOLOGICAL SOCIETY ASPIRATIONS

Eden Place and the Chicago Zoological Society had hopes for what might be achieved; ideals that evolved throughout the project. For instance, Eden Place hoped the partnership would lead to the development of a Fuller Park-based “satellite” for the Chicago Zoological Society education programs.

Eden Place brought extensive experience delivering nature-inspired programming to the Fuller Park community and beyond. The center also had partnered with larger cultural institutions and agencies in the past. These partnerships, many of them grant-contingent and short-term, left Eden Place grateful for the infusion of support, but “when the grant was over, we had very little—people do research on our community and then walk into the sunset. We didn’t have much to show for it.” Eden Place saw the Chicago Zoological Society as a partner with the potential for a sustained and symbiotic relationship – “we help them, they help us, together we help Fuller Park.” Early on, Eden Place appreciated that “the zoo’s management was willing to be flexible, to depart from a traditional, institutional structure to work

with a small organization like ours. They understood that to work with us, you couldn’t have the same expectations of a small organization as you would a large one.”

In addition, Eden Place hoped to improve community members’ science scores and literacy, which might translate into new and better job opportunities, and ultimately better economic stability and health.

Finally, Eden Place wanted to change the current narrative about Fuller Park, to gain the reputation as a neighborhood of green initiatives, of gardening in support of wildlife.



“We sought to bring the resources of Brookfield Zoo to Fuller Park. A satellite to bridge the distance from our neighborhood to the Zoo.”

— **Michael Howard, Founder and Chief Executive Officer**
Eden Place Nature Center

Chicago Zoological Society staff members felt “humbled by the challenges Fuller Park community members faced—the deep-seated issues” and believed that “as a large cultural organization with a similar mission, we were in a unique position to partner with Eden Place and collaboratively offer STEM programming. We wanted to find out how the zoo could learn how to be synergistic and adaptive to the needs of community—to shed the paternalistic relationship cultural institutions traditionally have with neighborhoods.”

Above all, Chicago Zoological Society staff wanted to foster connections with adults, families, children, and community groups alike, fostering multiple generations’ relationship to nature and wildlife.



“We saw the potential to change the way we could work internally and in neighborhoods—a more holistic approach to science education for all ages and audiences.”

— Lisa-Anne DeGregoria Kelly, Ph.D., Chicago Zoological Society Senior Manager of Education Strategies and Research





LESSONS & REFLECTIONS

PARTNERSHIP

New insights emerged as the program developed. A vital partnership is not static; it is elastic, continuing to change and grow. Such was the case for the SCIENCES project.

Better understanding of the neighborhood

The SCIENCES project was an opportunity to have a deeper partnership with one community around nature and environmental conservation. Understanding the neighborhood was an important part of the process. Chicago Zoological Society staff expressed, “We involved a community advisory council but wish we would have done comprehensive community mapping ahead of time – to do even more legwork before we started to find out who were community leaders, what were the key economic issues, gain an educational profile, find out where gang boundaries were, understand what an organization like Eden Place does to survive...everything.” Eden Place leadership believes, in general, funders must adopt a different, more realistic model for capacity to have the greatest impact. “We are small, but we are experts. We are a trusted partner. We get the job done.”

Food

Many children participating in the SCIENCES project are food insecure, and one way to encourage them to attend, and to ensure they are physically prepared to participate, is to meet their nutritional needs, first and foremost. Once the Zoo recognized this fact, it provided snacks or meals at SCIENCES programs, and saw participation increase significantly. Food also proved an ideal vehicle to begin conversations about nutrition, health, and connections to nature and the environment.

Paid internships

Several students who were program participants and continued to attend SCIENCES programs once they entered high school voluntarily assumed leadership roles. Kendale, a high school student, reflected, “I don’t have a problem not getting paid, but if I’m doing a lot of stuff, here a lot of hours, it would be better if older kids got paid.”

Clear career path

Parents of older participants urged a clearer and facilitated path to environmental careers by way of paid Brookfield Zoo internships, behind-the-scenes field trips, shadowing Zoo professionals, or satellite Brookfield Zoo programming in the community that could generate jobs for teens.

More programming

Several Zoo staff members and SCIENCES program participants agreed a great improvement would be to offer year-round programming and longer sessions. A Chicago Zoological Society staff member said, “We lose momentum and continuity when the kids go back to school. The kids are clamoring for more!” Related to this, several program participants suggested more indoor facilities for inclement weather and better places to wash hands and clean up.

Communication about changing needs and expectations

Reflecting upon the SCIENCES project, both partners independently identified communication as an area that needed improvement and felt that sustained, two-way communication was a challenge. “Communication has to be clear, an understanding from both sides about expectations.”

Chicago Zoological Society leadership recognized regular, ongoing check-ins were less frequent in the last two years of the project, in part because the program implementation component of the grant period was over. “In hindsight, we realize that not proactively maintaining communication impacted the strength of the partnership. Regular communication from a leadership level is something we will build into all our community work moving forward.”



PROGRAM AND COMMUNITY

Agreement on community-relevant definitions

The Chicago Zoological Society believed neighborhood assets could be drawn upon in science, nature, and environmental conservation initiatives. Former SCIENCES project principal investigator Alejandro Grajal commented, “One of the early realizations was that even though there was overlap, there wasn’t 100% agreement on the definition of a ‘healthy environment.’ The Zoo’s traditional definition focused on species survival, habitat, clean water, and pollination. Eden Place wanted to talk about healthier jobs, less trash, more fresh food opportunities. Finding common ground was one of the earliest successes of this project.”

Neighborhood boundaries

The Chicago Zoological Society quickly learned how “porous” the Fuller Park community is and welcomed residents from surrounding neighborhoods to programs at Eden Place. With new knowledge about neighborhood boundaries, Chicago Zoological Society staff expanded programming (post SCIENCES) to Englewood and Back of the Yards. Jo-Elle Mogerman, former SCIENCES project principal investigator recalls, “We turned the early problem of not understanding the interconnectedness of several neighborhoods into a success. We learned about new potential partners and were able to expand programming. It helped alleviate some of the pressure off of Eden Place.”

Parent involvement

Children were often the most consistent program participants. Parents were encouraged to attend family programs with their children, but oftentimes other pressing needs prevailed. A community member shared she’d like to see more parental participation. “We’ll send our kids, but sometimes it’s nice to come alongside them. You can talk about it and bond later. The moments are precious. Intentional. When kids see you are interested in what they are, the relationship works better. They start to share feelings about other things. They realize you are available.” When asked what might encourage more parental participation, she suggested inviting parents with an attainable contribution, like bringing the drinks to a potluck.

Considering the SCIENCES process and progress University of Illinois at Chicago researcher Dean Grosshandler sums up the challenges and lessons learned: "This partnership faced many of the significant obstacles that are characteristic of partnerships between large and small organizations, and especially between organizations that play different roles within their communities. However, a lot of good has come about because of the partnership and the continuing work of the partners, including the opportunity to establish with Eden Place an 'eco-makerspace' that will allow us to continue the work of collaborating with the neighborhood to increase environmental awareness, agency, and action after SCIENCES ends."

CONVERSATION AND CELEBRATION

Participants and partners agree three events were exceptional successes.

The 2018 Explorers' Expo Event at the Eden Place Children's Garden was a showcase of science savvy by SCIENCES participants to their community. They talked with community members about health and nutrition, about herbs and gardening. Community members participated by preparing and sharing dishes related to the nutrition, sustainability, and conservation education theme.

The final two events, held in 2017 and 2018, were community conversations in Fuller Park that together drew approximately 90 community members. The evenings were vibrant and highly interactive and sparked ideas about the SCIENCES project, about community strengths and struggles. There was a palpable sense of pride and joy in the neighborhood and in the activities and events offered by Eden Place and the Chicago Zoological Society.

PROGRAM ATTENDANCE

SCIENCES attendance at approximately 90 programs between 2014 and 2017 totaled over 3,800.

Professional audiences:

- Educator professional development—10 programs attended by approximately 160

Student audiences

- School group classes, field trips, science fairs, and King Conservation Science Scholars teen volunteer program—30 programs attended by 950

Public audiences

- Family programs, camp, youth programs, workshops, festivals, and conservation action events—48 programs attended by 2,700

Attendance numbers may include repeat visits.

EVALUATION

SCIENCES project evaluation led by Kate Livingston, Principal, ExposeYourMuseum, LLC, revealed:

- Participants built observation skills and critical thinking, and overcame fears about bugs and being in nature
- Adults built facilitation skills in engaging in science with their children
- Many participants planned to undertake environmental stewardship activities
- Community members shared ideas for programming, like community garden plots
- Participation spread via interpersonal connections with friends, neighbors, and family. At programs, participants forged new—and strengthened existing—relationships, increasing a sense of belonging and pride in the community
- An increased connection to the environment and comfort with science was reported by a majority of participants





PERSPECTIVES

Here, community leaders and the participants—children and adults alike—share their own insights and perspectives about what was most meaningful and memorable to them about the SCIENCES project.

EDEN PLACE

Reflecting on the partnership successes, Eden Place leadership was most happy to see kids enjoying themselves. The primary benefit of the SCIENCES project from the viewpoint of Eden Place's Amelia and Michael Howard was bringing people to the table who had not been represented at the Zoo before. "There was a spirit of inclusion." Eden Place appreciated the bus service that helped physically connect neighbors to Brookfield Zoo. "The trips to the Zoo and the Zoo workshops that took place here were highlights. The collaboration of our education working with theirs, side by side. It was a collective that benefitted all the families who participated." They also valued the broad base of knowledge partners like the University of Illinois at Chicago shared. "Knowledge beyond what we anticipated, plus a point of objectivity—a new perspective."

Chicago Zoological Society

Many Chicago Zoological Society staff members were proud to have been partners in a project that provided a safe place for learning to happen; an opportunity for first-hand, relevant science and nature experiences.

"This partnership gave Brookfield Zoo credibility within Fuller Park, allowing us to build relationships with the schools, police department, library, and surrounding communities. The extended amount of time Brookfield Zoo spent in Fuller Park enabled community members to trust us as a reliable resource for their families. Partnering with Eden Place also provided a safe space for participating youth to develop social, emotional, and cognitive skills without fear of physical or emotional harm." — *Shelly Hope, Chicago Zoological Society Community Relations Coordinator*

"Sometimes, our kids have tough situations: they struggle in school or at home. But, when we are with them, they are their best versions of themselves. They know we care about them. No one is left out; everyone has an opportunity to lead and to shine. They love building and messes. They learn so much by doing, working together." — *Maggie Warren, Chicago Zoological Society Community Relations Coordinator*

PARTICIPANTS

Time and again, participants remarked they learned so much about environmental issues and the impact on their own lives. They felt children had an opportunity to get involved, get outside in a safe place, and gain unprecedented knowledge and self-confidence. They developed a new understanding about the connection between what they were learning and job and career opportunities. Parents of participants commented repeatedly how grateful they were that SCIENCES offered activities for children of *all* ages. "I raised six children through this program—from a 16-year-old down to a 2-year-old. There's a diversity of programming. They know they aren't going to be bored," said one community member.


"At first, I was all 'I'm not going to play in the dirt,' but then I started to like it. I loved the trellis competition. I was the first to grow something. I also liked the field trips." — *Dejah, middle school student, SCIENCES participant*

"As the parent of a special-needs child, I was impressed that they took the time out to do special activities individually and also made her feel included in the group. Together, we all learned that you invest time and energy into something that's important to you—in this case, our neighborhood. We made it beautiful." — *Janice Jones, Bishop Shepard Little Memorial Center*

"I love nature. I was all about being outside. The sun helps the plants and helps people to grow, too. No one wants to be cooped up inside the house. It's fun to explore." — *Kendale, high school student, SCIENCES participant*

"There are walnut trees over on 53rd Street in a vacant lot. Walnut trees! We didn't even know it. I wish these trees could talk! Who planted them? Did people ever really harvest them?" — *Tosca King, SCIENCES participant from Bishop Shepard Little Memorial Center*





"The shy one here (points to daughter), she's actually spearheaded recycling in our house. She's part of the school's environmental club. I'm sure the seed was planted at Eden Place and through the Brookfield Zoo program."

— **Masajji Patrick**, parent of SCIENCES participants

"I didn't want to do this program when I first heard about it, but a friend in the program convinced me. I loved the smoothie competition. I came in first place. The people are nice and they helped me become a better leader."

— **Darnell**, high school student, SCIENCES participant

"I found out how much sugar is in what we eat and drink, about the nutritional value." — **Kailie**, middle school student, SCIENCES participant

"I loved going to the Zoo, seeing the dolphin show." — **Taylor**, middle school student, SCIENCES participant

"I liked being outside." — **Haley**, high school student, SCIENCES participant

"This is a place where the kids are safe. When they grow up, they'll know where they came from. They can experience things here they can't anywhere else. They love it." — **Mettie James**, community resident

"These programs make sense. Give kids a chance to connect with nature, like we used to before we were afraid. Animals, plants—you find out where your food came from. It's great that they are encouraged to learn on their own. A real benefit of the program was bringing kids to Brookfield Zoo, especially for kids who weren't able to go before."

— **Rosie Muhammed**, The Salvation Army Family Outreach Initiative

"My daughter did a report on tea—she did so much research and learned so much. My son would come home from Brookfield Zoo with funny stories about how the geese ran the place. One day, leaving Eden Place, we found a huge praying mantis on the back seat of our car. We had some mason jars and we brought it back to release it at Eden Place. I love that my kids and I had these experiences and stories."

— **Linda Hampton**, parent of four SCIENCES participants

"We got to go on a field trip every Tuesday! We got to feed animals, plant things, pull weeds." — **Javanta**, middle school student, SCIENCES participant

"I learned about how plants could be used for different things. I learned about the different properties and how they could help the body." — **Kelise**, middle school student, SCIENCES participant

"They taught science better than they do at school. It's interactive. You see how it actually works. You don't just sit there and take notes." — **Tyannah**, middle school student, SCIENCES participant



"I like how our community comes together. If there's some good cause going on, everyone is here and helps out. If there's a downfall, we come together. People love each other."
— Kendale, high school student, SCIENCES participant






MOVING FORWARD





"When I got to Eden Place, I was amazed. I actually did feel like I was in Eden. I loved everything about this program. The environment, the staff from the Zoo, the children's interest. The whole experience was magical. And, it has opened my eyes and my family's to nature. My granddaughter let a caterpillar crawl on her. My grandson thinks he's a cool dude and he enjoyed digging in the dirt. Shelly made me taste peppermint right out of the ground and it changed me. I sit outside now and listen to the birds and take pictures. Before I wouldn't have even paid attention. Now I want to plant milkweed so the butterflies will come. It opened my eyes to a world I was part of but wasn't aware of."

— Tosca King, SCIENCES participant from Bishop Shepard Little Memorial Center



The results of this project don't fit neatly into a package, nor should they. The project was complex, navigating profound and difficult issues: access and broadening participation of audiences underrepresented in science, socioeconomic injustice and unequal access to resources, and innovation within the context of institutional infrastructure, to name a few.

Obstacles were encountered. Challenging issues prevailed. Both institutions faced unexpected hurdles along the way. Both learned, recalibrated, and continued to move forward.

Even in the midst of challenges that seemed daunting, together Eden Place and the Chicago Zoological Society offered unique opportunities for professional, student, and public audiences of all ages in and near Fuller Park. Strong relationships with community members were established and nurtured.

In gathering information for this publication, in every single conversation with participants, they expressed gratitude and enthusiasm for activities that gave community members the opportunity to learn and to shine; to gain not only access, knowledge, and experience—but particularly in the case of young participants—confidence and mastery.

As the Chicago Zoological Society looks to the future of its outreach and community engagement, we are committed to applying the knowledge we have gained. SCIENCES fundamentally challenged and changed the way we will continue to develop and facilitate educational programs in communities. It is our mission to engage children and families with our science and environmental education programs from early childhood through adulthood.

Every cultural institution, every community organization, and every neighborhood is different, with unique strengths and challenges. It is our hope that the SCIENCES project provides individuals and organizations with insight for future partnerships and community-based informal learning initiatives.



**THE
UNIVERSITY OF
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AT
CHICAGO**



Chicago Zoological Society
Inspiring Conservation Leadership

*The Nature of Community
SCIENCES: Supporting a Community's
Informal Education Needs—
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