



Museum Profile

KENTUCKY SCIENCE CENTER

JEFFERSON COUNTY, KENTUCKY

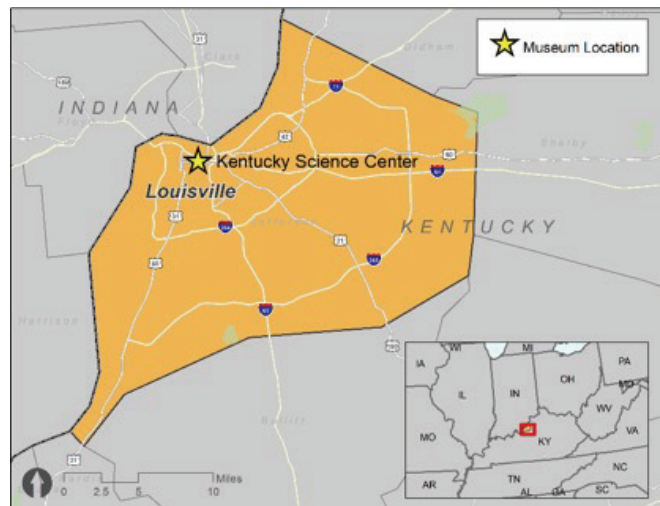
Museum Profile: Kentucky Science Center



JEFFERSON COUNTY, KENTUCKY

Kentucky Science Center (KSC) is the state science center of Kentucky, located in downtown Louisville. Formerly known as Louisville Science Center, the official name change came in 2012 as the museum expanded its off-site programs to different parts of the Commonwealth. The museum continued to broaden its reach in 2019, with programming offered in all Kentucky counties and a majority of counties in Indiana. In 2019, KSC generated roughly \$5 million in revenue, supported nearly 200 staff, hosted more than 324,000 visitors, and maintained roughly 90,000 members.

KSC's mission is "to encourage people of all ages to 'Do Science' in ways that are engaging, educational, and entertaining to inspire a lifetime of learning." Many of the key initiatives at KSC embody this philosophical shift from *learning* science to *doing* science, an attitude that emphasizes inquiry-based exploration. At KSC, children experience science through fun, interactive, and engaging activities that promote a hands-on, informal approach to education.



JEFFERSON COUNTY

Jefferson County is the most populous county in Kentucky, with a population of 759,724. The median household income is about \$50,099 a year, and the poverty rate is 11.3 percent, similar

to the national poverty rate. In Jefferson County, 69.1 percent of residents are White, 20.7 percent are Black, and 4.8 percent are Hispanic.

	Population	% Change in Population (2000–2016)	% White	% Black	% Hispanic	% Asian	% Other	Median Household Income	% Families in Poverty
United States	318,558,162	13.2	62.0	12.3	17.3	5.2	3.3	\$55,322	11.0
Jefferson County	759,724	9.5	69.1	20.7	4.8	2.5	2.8	\$50,099	11.3

Compared to other urban counties throughout the country, Jefferson County residents suffer from relatively low levels of community health, and the K–12 educational sector experiences extremely high needs, reflected in students’ performance across a range of publicly available measures of success. Jefferson County fell in

the bottom quartile on the Community Health and School Effectiveness Indexes.¹ Health Care & Social Assistance, Manufacturing, and Retail Trade are the largest employment sectors in Jefferson County, employing over one-third of working adults.

	Total Labor Force	% Health Care & Social Assistance	% Manufacturing	% Retail Trade	% Accommodation & Food Service
United States*	131,362,978	14.5	9.3	10.9	8.9
Jefferson County	453,483	13.0	12.0	10.0	8.0

Data Sources: 2012–16 American Community Survey five-year estimates; U.S. Census Longitudinal Employer-Household Dynamics (LEHD), 2017.

*Continental figures for total labor force include the 48 lower states and Washington, DC.

¹ Data elements included in the Community Health and School Effectiveness Indexes, along with measures for Jefferson County, can be found at the beginning of Appendix II.

SITE VISIT PARTICIPANTS AND DATA COLLECTION

In February 2020, the study team conducted interviews with 12 current staff and representatives from 17 partner organizations. Site visit interviews conducted with KSC staff and partners focused on understanding the KSC programming and partnerships that support formal and informal learning in Jefferson County as well as KSC's institutional approaches to assessment and sustainability.

In addition, the following data were used to create the network map included in this profile:

- KSC Tax Form 990 for 2017–2018
- KSC Financial Statements for years ended June 30, 2018, and June 30, 2019 Program evaluations for several KSC programs
- Interview notes and related materials collected by the case study team

This site profile includes the following:

- A summary of select KSC programming and partnerships that support formal and informal education in Jefferson County and the surrounding region
- A descriptive network map that illustrates the scope and variety of connections KSC maintains with local partners throughout the county and beyond

KEY PROGRAMS AND PARTNERSHIPS BRING STEM EDUCATION TO UNDERSERVED STUDENTS AND COMMUNITIES

As the state science center, KSC promotes regional social wellbeing by supporting the development and delivery of quality Science, Technology, Engineering, and Mathematics (STEM) education across the Commonwealth. Health care and advanced manufacturing are two of the biggest employment sectors in the region, and KSC plays an active role in advancing STEM education that aligns with regional workforce development goals. In this environment, KSC provides unique STEM educational experiences that deeply engage participants by building relationships, igniting excitement, and empowering young minds to seek further learning.

The key programs and initiatives at KSC generally represent informal approaches to STEM learning that are designed to meet statewide educational standards, thus serving as a resource

to students, parents, caretakers, and teachers in the region. In addition to visitors to its flagship facility in downtown Louisville, KSC reaches regional audiences through several traveling programs such as Science in Play2Go (SiP2Go), Assembly Programs, and Afternoon STEM Clubs.

KSC also makes its facility and its programming accessible and meaningful to staff and volunteers, museum visitors, and program participants through a diverse range of programming and institutional partnerships across the broader community. As the first business certified by Families for Effective Autism Treatment (FEAT) of Louisville as "Autism-Friendly," KSC also makes concerted efforts to make its installations responsive to the diverse needs and abilities of its patrons and staff. In these ways, KSC makes Doing Science a collaborative activity that reinforces traditional

academic learning, sparks interest in new ideas, and catalyzes partnerships and relationships that enhance the wellbeing of residents throughout the region.

KSC Supports the Social Wellbeing of the Region by Providing Collaborative Educational Experiences That Empower Participants

One of the most popular exhibits at KSC, Science in Play, started as an early childhood educational experience where children go from zone to zone to “investigate; assess risks; use objects as tools; shop for shapes, textures, and colors; explore; build; climb; predict; and test.” At the Shapes and Stuff Store, children choose and interact with different objects, while signage guides parents by explaining the science elements in each activity. This creates an open-ended environment that promotes curiosity and exploration and invites parents and caregivers to share the experience with children. By using real materials easily found in everyday life, like recyclables, KSC also shows that learning can come from everyday objects, making science more approachable. Offering experiences that are “free from exactness” encourages visitors to interact and create their own relationships with the materials. One staff member explained:

“What we are trying to do is [to] push the envelope in creating dialogue between people. It’s not just [that the] visitor is interacting with nebulous things lacking facts. All of a sudden, it’s people adding their ideas; they might not be expert ideas, but it feels better to them because it’s communal thought. It may not feel super deep or classroom-like, but it’s a shared experience.”

The emphasis on open-endedness and collaboration informs not only the exhibits and programs that KSC designs, but the process of its development as well. For instance, during the site visit, a prototype exhibit for Uniquely Human invited visitors to explore themes related to identity, unconscious bias, deliberate vs. automatic thinking, feelings, emotions, and reflexive actions. KSC installed this prototype

exhibit to solicit visitor feedback through surveys, staff observation, and interviews—feedback that would inform the final installation of the exhibit itself. This process ensures that the exhibits are “relevant and real” for people visiting KSC. The open, iterative practice also represents a tangible way that KSC steps into broader community conversations about racial/ethnic diversity and inclusion.

The Pulse of Surgery program, a partnership with the University of Louisville, brings life lessons about the importance of healthy lifestyles into stark relief for participants. The program livestreams real-time open-heart surgeries, providing participants with a full view of the operating room. Medical professionals are available to answer questions following the surgery. It gives viewers a chance not only to reflect on nutrition, health, and life, but also teaches that unhealthy actions can have long-lasting consequences.

These exhibits and programs at the main facility shape the experience of individual visitors, school groups, and other field trip visitors in many ways. KSC works directly with educators to design project-based learning experiences that tie field trips back to school curriculum and promote student engagement. For example, after learning about curating exhibits, a visiting class designed an exhibit about magnetism and pitched it to KSC staff, giving its lessons a “real-life dimension.” Promoting these types of dialogues between educators, students, and the museum staff makes KSC an ideal partner for teachers in the Jefferson County Public School District.

KSC’s main facility also serves as an educational ground for preservice teaching students from local colleges and universities. Through this collaboration, teachers in training have opportunities to observe educational practices for Next Generation Science Standards (NGSS) in hands-on KSC environments. In preparation for these visits, KSC staff and the educators codevelop the assignments based on the curriculum goals.

KSC Meets Community Needs through Relationship Building and Flexibility

KSC's focus on relationship building and engagement helps the museum closely understand the needs of the communities it works in and enriches its collaboration with partners. One interviewee commented, "It's so much easier to push out programs. Once you really establish who are the people and their communities and how we augment that, it becomes a much different type of impact."

A long-standing collaboration with the Jefferson County Public School District provided KSC the time and space to create learning experiences that enhance the district's capacity in science education. KSC designed an after-school science enrichment program at the elementary schools with "an inquiry-based framework for instruction and demonstration" to promote and increase scientific proficiency among students. Conceived as a pilot program in 2013, KSC and the district cocreated the program with iterative consultation and feedback across different subject areas. The sessions focus on exploration of hands-on science activities that classroom teachers often do not have time to prepare, like erosion tables or a series of parallel circuits. KSC staff travel to the school to facilitate these programs, providing an added benefit for the school district by eliminating the need for student transportation, concerns around time, and costs.

KSC also works with the district to design pretest and posttest assessments of these enrichment programs, which test the students' content knowledge. As one public school educator noted:

"They are not shy about evaluations; they work with us on that. KSC's program measures are robust and strong. When we are funding something, you need the [quantitative] measures. Our board wants to know if it works."

In this case, KSC adapted its approach to assessment to meet its partners' needs, which were narrowly focused on students' performance on key metrics built into the program design.

This type of assessment was a departure from how KSC typically designs its assessment tools, which tend to focus on measuring students' interest and engagement with its programs and exhibits.

Partnerships with Public Libraries Expand Access to KSC Early Childhood Programming to Communities across the State

In 2018, KSC launched SiP2Go, a three-month residency program for public libraries around the Commonwealth. After the initial support of funders PNC and Genentech, the program has continued with a grant from the Institute of Museum and Library Services (IMLS) via the Kentucky Department for Libraries and Archives.

The partnership with libraries appears mutually beneficial for both institutions. One librarian explained that hosting SiP2Go was a chance for the local community to see that "libraries are not just for books" and that "it was a great community support tool to bring everyone together." Furthermore, the experience helped the library reimagine its newly constructed branch: KSC added a new creative play area inspired by the themes of SiP2Go. Another interviewee stated that KSC plays a unique role within the Commonwealth "in that they are providing a public service, shifting the conversation about the accessibility of museums and public perception of what libraries are to the community."

The impact KSC has on communities extends beyond initial engagement with the SiP2Go program. KSC places significant value on relationship building and has continued to strengthen its relationships with statewide libraries by attending industry conferences. For instance, one librarian has kept in touch with a KSC staff member, who has helped them brainstorm STEM programs and STEM resources. They pointed to this type of "consistency and longevity" as qualities that set KSC apart from other organizations that libraries often work with.

KSC STRATEGIC PLANNING AND CONTINUOUS ASSESSMENT TRACK PROGRESS ON ENHANCING WELLBEING ON-SITE AND IN THE COMMUNITY

For every quarterly board meeting, KSC reports Key Performance Indicators (KPI) that summarize its quarterly activities using measures like museum membership, program attendance, community engagement touch points, earned revenue, and program outcomes. Program outcomes align with the four pillars of the strategic plan: 1) Inspire Healthy Lifestyles; 2) Amplify Science, Technology, Engineering, the Arts, and Mathematics (STEAM) Programs and Partnerships; 3) Promote Cultural Excellence through Diversity, Equity, and Inclusion; and 4) Incubate Creative Enterprise Ideas. Within each of these pillars, the KPIs capture multiple metrics that provide a running “scorecard” on KSC’s progress on meeting annual targets as well as a more holistic sense of the degree to which it is advancing its institutional mission.

In addition to regularly tracking key metrics related to institutional goals outlined in its strategic plan, the KSC leadership team provides ongoing support and development for its staff—full-time staff, part-time staff, and the numerous volunteers who keep KSC running. Each staff member, from the leadership team to volunteers, creates a development plan that helps individuals see where their responsibilities fit into the broader organization and how their efforts tie into different elements of KSC’s strategic goals and broader mission. This intentional approach to relationship building and professional

development with staff and volunteers is critically important for an institution like KSC that generates most of its revenue as earned income and depends on volunteers for facility operations and key programming activities. In many ways, KSC’s ability to positively contribute to the wellbeing of its visitors, partners, and the broader communities it serves starts with its commitment to support the wellbeing of its staff.

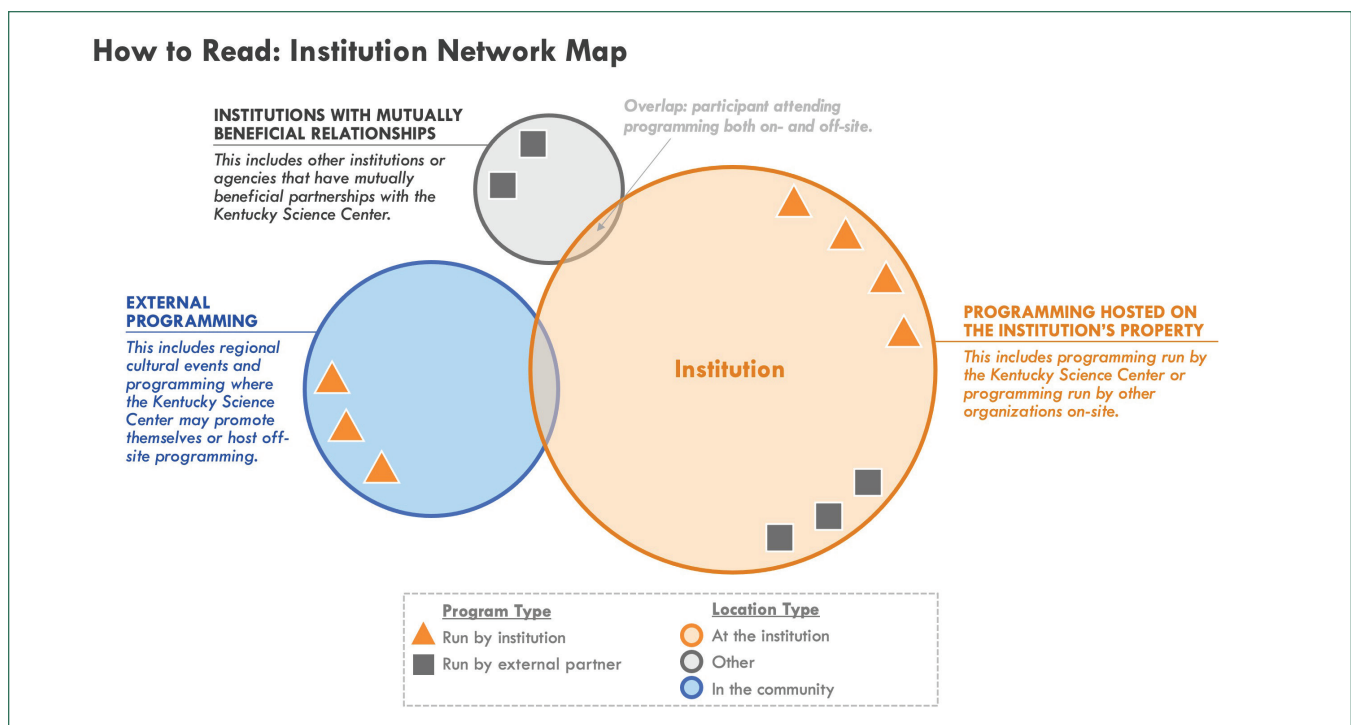
KSC promotes the overall wellbeing of its visitors, partners, and the broader community through the design of the institutions exhibits, the programs it offers on-site, and those it supports with other organizations throughout the region and beyond. KSC is widely recognized by its partners as “having a high ‘say-do’ ratio”—KSC shows up when and where it says it will, and it delivers high-quality experiences with its partners for its patrons and visitors. By creating a diverse range of accessible ways to “Do Science,” KSC enhances the educational experience of school-age children across the state, helps advance STEM literacy throughout the community, and facilitates individual and institutional connections that strengthen broader networks of support for the wellbeing of visitors, residents, businesses, and institutions within Jefferson County and throughout the state.

KENTUCKY SCIENCE CENTER NETWORK MAP

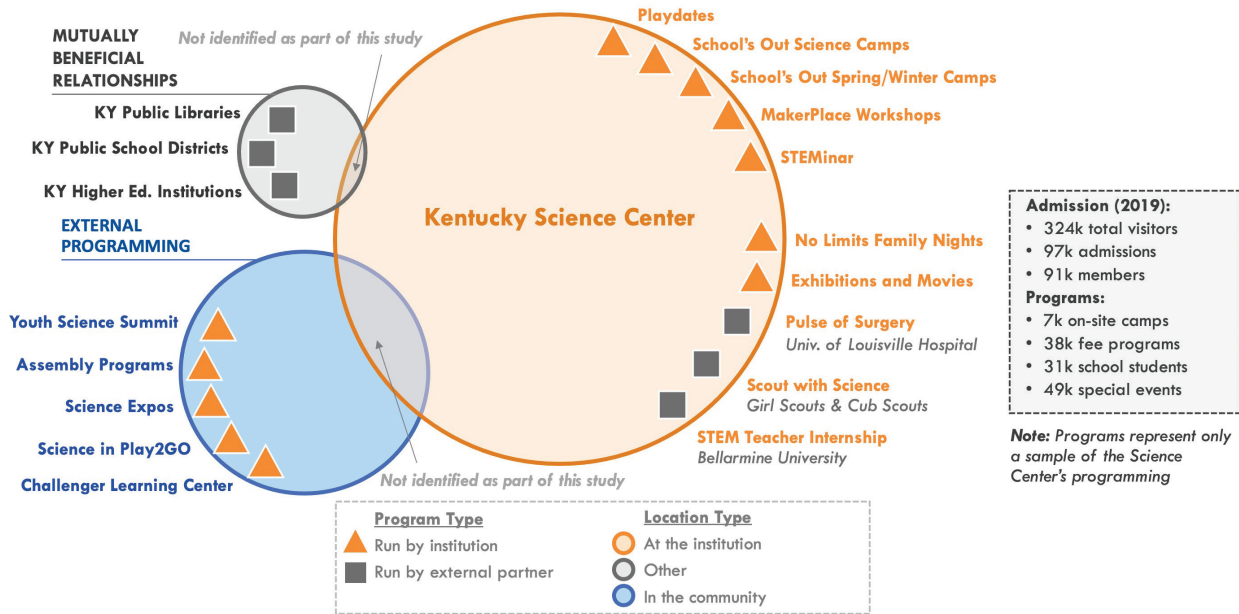
Using data provided by KSC, the study team developed a descriptive network map to highlight the different types of connections KSC maintains with other institutions in the local community. The map illustrates the relationships between KSC and those entities that offer programming at the museum itself and those that support cross-

marketing efforts or have reciprocal relationships with the museum, and it includes examples of off-site, KSC-led programming. The map does not provide an exhaustive list of the museum’s programs but attempts to illustrate a subset of the relationships that the museum maintains.

NOTE: The network map is purely descriptive. The connections represented on the map do not necessarily, and are not intended to, provide estimates of the duration, durability, intensity, or broader economic impact of the relationships between KSC and any single entity, or the broader network itself. The goal of the network map is to represent the range and diversity of different types of institutions that connect to the museum in different ways.



Kentucky Science Center Network Map



The figure above illustrates a *sample* of the connections of the many programs offered across KSC's network. Within the orange circle is a small sample of programs conducted on the physical property of the institution—both programs produced by the institution and those produced by others. Within the blue circle is a sample of programs produced by KSC and offered off-site in the community. The gray circle represents a sample of organizations and institutions that have reciprocal relationships with KSC.