CARNEGIE SCIENCE CENTER RELEASES POSITION PAPER TO WHITE HOUSE

‘STEM EDUCATION FOR EARLY LEARNERS’ ANNOUNCES SCIENCE CENTER’S COMMITMENT TO EARLY CHILDHOOD EDUCATION

PITTSBURGH, April 21, 2016 — Carnegie Science Center asserted its stance on the importance of STEM education for early learners in a position paper released in conjunction with today’s White House Advancing Active STEM Education for Our Youngest Learners symposium. The submission publicly announces the Science Center’s commitment to early childhood education, reflecting on the museum’s successful partnerships to involve educators, students, and families in critically important STEM (science, technology, engineering, and math) subjects.

More than 200 organizations across the country, from museums to technology companies, submitted statements about their innovative STEM work in advance of today’s White House event. The White House, in partnership with the U.S. Departments of Education and Health and Human Services and Invest in US, hosted the symposium to highlight the importance of promoting active STEM learning for our youngest children and to celebrate a broad range of public- and private-sector leaders committed to promoting STEM learning across the country.

“Hands-on STEM learning is crucial in the early years, when young children are motivated by their own natural scientific curiosity,” said Wendy Brenneman, Carnegie Science Center’s Manager of Early Childhood STEM Initiatives. “This position paper and our education model highlight not only how important STEM professions will be for our future, but also the steps we must take to ensure families and educators are supported in providing developmentally appropriate STEM opportunities for the early learners who will be these professionals.”

Carnegie Science Center’s “STEM Education for Early Learners” position paper:
Issue: The first eight years of a child’s life are critically important for brain development, but educators and families of young children are generally unprepared to offer meaningful inquiry activities in STEM. Carnegie Science Center has created a successful model preparing early childhood educators, students, and families for achievement in STEM subjects and interest in STEM careers.
Problem: According to the 2012 White House President's Council of Advisors on Science and Technology report, the United States will face a shortfall of the approximately one million STEM professionals it needs to remain a globally innovative power. While research from Purdue University's Department of Educational Studies indicates that children form beliefs about their own competence in subjects such as math as early as kindergarten, and that a lack of exposure to science inquiry in the early years leads to student perception in elementary grades that science is too difficult, and their own ability is too low, independent evaluation shows that Pre-Kindergarten teachers are unprepared to provide this exposure. A sample of 150 Pre-K teachers asked to rate their confidence, knowledge, and skills in seven curriculum areas assigned science as their subject of lowest confidence, and math second lowest. Though students with families actively involved in their learning become more confident and successful learners, evaluation shows that only 18 percent of families with preschool-aged children report doing a recent science activity at home.

Background: Since 2009, Carnegie Science Center has partnered with more than 180 underserved Head Start classrooms to deliver and evaluate its early STEM education model, reaching more than 350 education professionals and thousands of low- to moderate-income early childhood students and their families. Incorporating developmentally appropriate practices as endorsed by the National Association for the Education of Young Children (NAEYC) and the National Science Teachers’ Association (NSTA), Carnegie Science Center provides educator support, classroom capacity building, and family engagement to support the whole child.

Proven Results: Independent evaluation of Carnegie Science Center's approach was conducted for two early learner audiences: Grow up Great with Science in Pittsburgh and Westmoreland County, and Ready, Set, Science in Indiana County.

- After one project year, Grow up Great with Science project teachers reported a 17 percent increase in science confidence and knowledge. After four years, 50 percent of teachers reported science activities scoring in the highest quality, compared with 23 percent for comparison teachers.
- Ready, Set, Science classrooms showed a 60 percent increase in the richness of classroom environments by the end of year one, with classroom activity quality improving by 40 percent in the second year.
- 50 percent of project families reported a recent science experiment with their children, as opposed to 18 percent of comparison families.

In addition to Carnegie Science Center's submission, two other local organizations were featured. The Pittsburgh Association of the Education of Young Children and The Fred Rogers Company also submitted documentation of their work in the region.
About Carnegie Science Center

Carnegie Science Center is dedicated to inspiring learning and curiosity by connecting science and technology with everyday life. By making science both relevant and fun, the Science Center’s goal is to increase science literacy in the region and motivate young people to seek careers in science and technology. One of the four Carnegie Museums of Pittsburgh, the Science Center is Pittsburgh’s premier science exploration destination, reaching more than 700,000 people annually through its hands-on exhibits, camps, classes, and off-site education programs.

About Carnegie Museums of Pittsburgh

Founded by Andrew Carnegie 120 years ago, Carnegie Museums of Pittsburgh is a collection of four distinctive museums dedicated to exploration through art and science: Carnegie Museum of Art, Carnegie Museum of Natural History, Carnegie Science Center, and The Andy Warhol Museum. The museums reach more than 1.3 million people a year through exhibitions, educational programs, outreach activities, and special events.

###