

Youth Astronomy Apprenticeship

An Initiative to Promote Science Learning Among Urban Youth and Their Communities

MIT Kavli Institute for Astrophysics and Space Research
Education and Outreach Group

Youth Astronomy Apprenticeship (YAA) is an out-of-school time initiative that fosters



science learning as an effective way of promoting overall youth development and competitive professional opportunities among urban teenage youth and their communities. Based in Cambridge, Massachusetts, the program is a collaboration between the **MIT Kavli Institute for Astrophysics and Space Research**, the Smithsonian Astrophysical Observatory, the Timothy Smith Network, and the Institute of Learning Innovation, and is by NSF (DRL-0610350). Over the last two years, YAA urban youth

have learned to communicate science to their communities by developing their own plays, museum exhibits, instructional activities, planetarium shows, and marketing campaigns.

The YAA program progressively develops youth's science knowledge and 21st century employable skills through several program stages. In the after-school program, youth



engage in astronomy investigations, take astronomical images using robotic telescopes, learn to process astronomical images, and produce reports and presentations about their investigations. Over the last two years, the YAA program recruited 113 youth (49% boys and 51% girls) with a retention rate of 54%.

In the next stage of the summer apprenticeship program, youth participate in paid positions, working with scientists and science educators from MIT and Harvard; the Underground Railway Theater; Jeff Kennedy Associates, a museum exhibition design and planning company; and ThinkCollaborative, a local marketing and advertising company. So far YAA apprentices have produced and performed science/astronomy plays, designed and facilitated activities to introduce a lay audience to the use of the

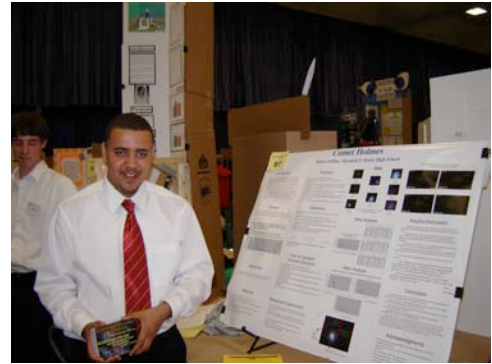


telescope, created components for professional museum exhibits, created planetarium shows that they perform at various venues using a portable planetarium. Some continue on to participate in community outreach events, where youth present their science/astronomy performances as science ambassadors at community events across the city.



Finally, some youth take on a major role in the YAA program itself and join the staff as youth assistants for the YAA after-school programs. Forty-three youth became YAA apprentices, and eight of them are currently YAA assistants. Of the assistants, 100% returned to the YAA summer apprenticeship for a second year.

While the YAA program is still in a formative stage, its impact on urban youth can be transformative as exemplified by the case of Heleno, a rising senior at the Jeremiah E. Burke High School in Dorchester. He and his family moved to Boston from Cape Verde five years ago. When Heleno joined YAA in 2007, he had very basic computer skills but a great interest in science. He attended the after-school program, became a YAA apprentice, and then served as a YAA assistant. His communication and critical thinking skills improved greatly as he developed a passion for astronomy and even joined a local amateur astronomers club. Under the mentorship of the director of YAA, Heleno created an astronomy project for the 2007–08 science fair. In May 2008, he won one of the Massachusetts State Science Fair first prizes, the Apollo Award awarded by the Massachusetts Space Grant and a \$20,000 scholarship for University of Massachusetts Amherst. Heleno is not alone in his success; other YAA students have won science fair awards and scholarships to college. And, like Heleno, 98% of the 113 youth who joined the program so far are from groups historically underrepresented in STEM, including African-American (40%), Hispanic (25%), and Somali (4%) populations.



For more information on *Youth Astronomy Apprenticeship*, contact Dr. Irene Porro, Director, at iporro@mit.edu or 617-258-7481

