Outreach Purpose

The Fisk University Swarmathon Team (FST)engaged in outreach by mentoring/partnering with two students from Martin Luther King Magnet Science Academy in Nashville TN. This collaboration gave Fisk University Students the opportunity to mentor Metro Public School students. Research suggests this helps in building college student's sense of self-efficacy.

The Fisk Swarmathon Team also worked in conjunction with the Fisk Rocket Team's outreach effort. The Fisk Rocket Team sponsored a Science Club at Rose Park Magnet Middle School. This science club met every two weeks and engaged in various science projects from virtual robots to virtual water bottle rockets.

The Swarmathon advisor also engaged in two STEM presentations at Antioch Middle School. These presentations/demonstrations were designed to motivate student participation in Space exploration, computer programming, robotics, and astronomy.

Identify outreach recipient group(s)

1. Martin Luther King High School
2. Antioch Middle School
3. Rose Park Middle Magnet
4. Head Magnet Middle School

Effectively describe what the outreach activity was

Rose Park Science Club

Rose Park science club was established as an after-school program to enrich middle school student's STEM exposure. The Science Club meets once every two weeks from 3:15 PM to 4:45 PM.

Swarmathon Team Participation

The Swarmathon Team and Advisor facilitated arrow rocket construction and launch competitions with youth.

Students learned how to design and model the flight of a water bottle rocket using the on line wed environment Whiteboxlearning. Students learned how to design a rocket using a CAD module then race the rocket the designed in an online simulator. Students learned about Newton's laws and how the governed rocket flight.

All activities were fully hands on. Students worked in a virtual environment that could access even when they were at home so long as they had a computer and an internet connection.

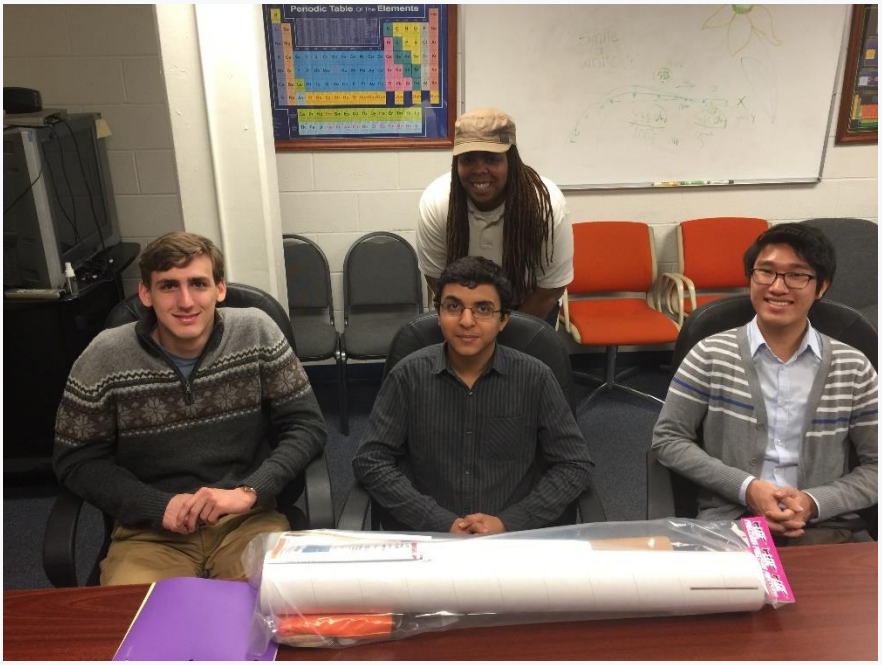
The Rose Park Magnet Science club consists of roughly 45 students. The students come from a diverse mix of median and low socioeconomic levels. Student ethnicity range from Black, Latino, Asian, Indian – Asia, and traditional White students.

Martin Luther King Magnet

Two MLK students worked with the Fisk Swarmathon team on the virtual robotics competition. The two students came to Fisk University on Thursdays from 5:00 PM to 7:00 PM and Saturday from 11:00 AM to 2:00 PM. Each student had an exposure to computer coding. The students are also being mentored by the Fisk Rocket Team to participate in a national rocket competition.

The two high school students were active participants in the Swarmathon activities. One student who a senior will be attending Stanford University upon graduation. He feels participation in this project has helped him decide on either robotics or engineering as a major.

One student's ethnicity is Egyptian and the second is Indian/Asian.



Antioch Middle School

The Fisk Swarmathon Advisor gave a STEM presentation to the 5th and 6th grade of Antioch Middle School. The presentation/demonstration was designed to be engaging and excite student's interest in NASA, STEM, computer coding, robotics, and Space exploration.

The Swarmathon Advisor inspired many students to pursue STEM majors when they go to college. One of the school mentors remarked that all the students could talk about in the afternoon after the visit was how fun and exciting the science demonstrations were.

Students and teachers got to participate in several science demonstrations ranging from angular momentum to optics.

The total number of students was about 400. The school set up an assembly for the entire 5th and 6th grade classes.

Head Magnet Middle School

Swarmathon Team Participation

The Swarmathon Team/Advisor facilitated assisted in a water bottle rocket construction and launch competition with 5th grade classes.

Explain how the outreach project inspired others to learn about robotics, computer science, engineering or NASA activities.

This activity demonstrated how rockets are designed and built. Student's built their rockets and launched them in a competition outside their school.

All rockets were built exclusively by the students. Fisk Advisor assisted in the launching.

The competition consisted of about 25 students.