STEM Santa Fe

STEM Scaffold Santa Fe @ Capital High School

Pilot Program 2018-2019 Summary Report

Purpose

STEM careers provide high paying jobs and low probability of unemployment which will contribute to the long term economic stability, health, and wellness of individuals and the community of New Mexico as a whole. STEM Scaffold Santa Fe focuses on building youth resiliency and encouraging educational attainment to strengthen the pipeline for a competitive STEM workforce.

Goals

The goals for **high school students** of STEM Scaffold Santa Fe are to be exposed to STEM hands-on projects and terminology during school hours in the AVID class; to experience an increase in interest in STEM educational courses or careers; to elect to take more STEM college classes while in high school and/or beyond; and to improve their 21st Century Skills such as teamwork, problem-solving, presentation and communication skills, and overall resiliency.

The goals for **STEM mentors** were to improve their leadership and facilitation skills in both academic and professional settings.

Description

Starting in May 2017, STEM Santa Fe has spearheaded STEM Scaffold Santa Fe, a collaborative working group of educational and youth development groups working together to recruit, train and place caring local STEM college students and STEM professionals in sustained high school mentorship programs. In the academic school year of 2018-2019, with a grant from Opportunity Santa Fe, STEM Scaffold Santa Fe trained and placed STEM professionals and STEM college students at Capital High School as mentors for two hands-on STEM projects. 57 students in 10th grade AVID classes were mentored weekly in two 6- to 8-week sessions.

Mentors

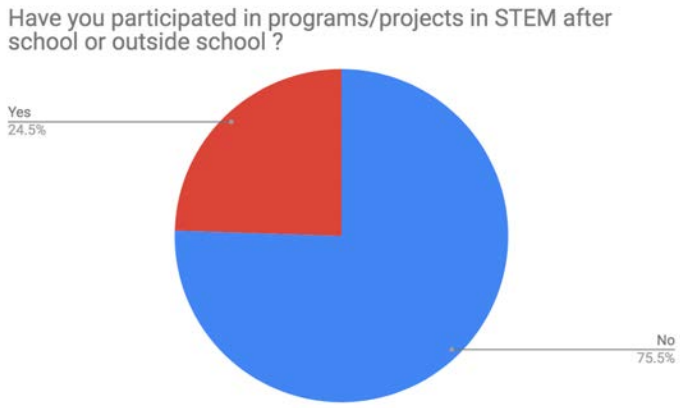
The hands-on projects that students complete with mentors are designed to be challenging. With each 8-week project, mentors received a day of training prior to beginning in-class work. The intention is that mentors are facilitators of learning and not teachers. Their job is to help students remain engaged in their learning and enjoyment of STEM topics. Mentors promote a positive group dynamic and model a curiosity in learning and problem-solving. Ultimately, learning alongside other more knowledgeable mentors and along with the students, college mentors will gain confidence in their own ability as future STEM professionals. Across the two sessions in 2018-2019 school year, we had eight STEM professionals who worked as volunteers in the classroom and six college mentors.

Students

57 high-school sophomores in the Capital High AVID (Advancement Via Individual Determination) program:

77% females
23% males

94.6% Hispanic
3.6% Anglo
1.8% Filipino

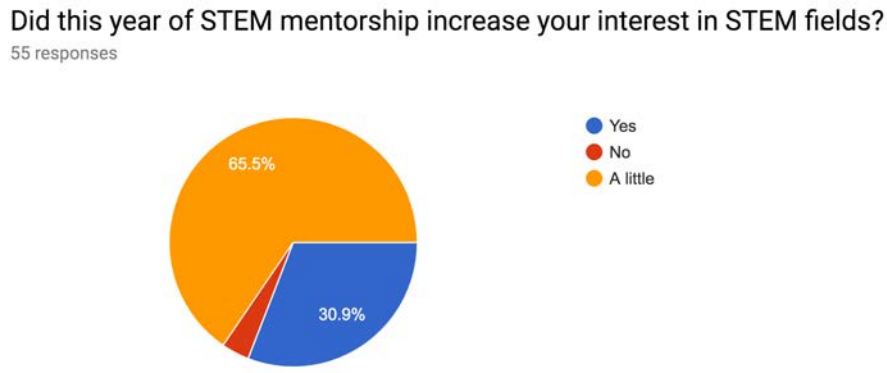


Prior to STEM Scaffold Santa Fe, 67.3% of students reported they had <u>never</u> taken any computer classes and 75% reported they had <u>not</u> participated in any STEM programs or projects outside of regular class time. Therefore, by bringing STEM Scaffold Santa Fe program to the AVID class, 100% of these students were able to experience hands-on STEM projects that they would not have otherwise.

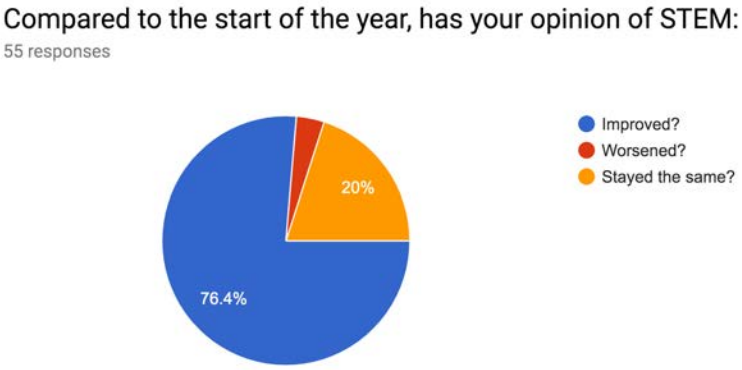
How well did we do it? Did we make a difference?

Goal: Students will experience an increase in interest in STEM educational courses or careers.

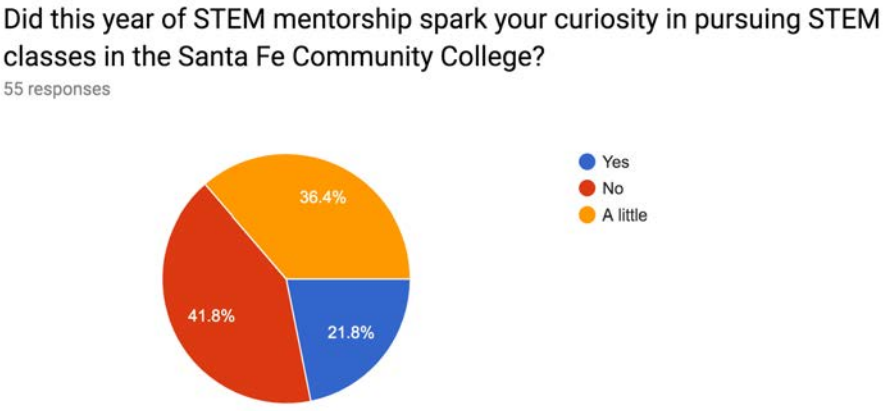
97% of students reported at least a little change toward a positive attitude and mindset around STEM studies and careers upon completion of the STEM Scaffold Santa Fe mentorship.



76% felt that the mentorship had improved their attitude toward STEM in general. 89% reported that they felt they had a better understanding of the available opportunities and pathways to a STEM field. When asked if they were interested in pursuing a STEM career, 6% said yes, 42% said a little, and 53% said no. (We, as a team, feel that we need to clarify in the upcoming year what defines a career as a STEM career based on these confusing results. Improvements to the upcoming school year's survey are complete.)



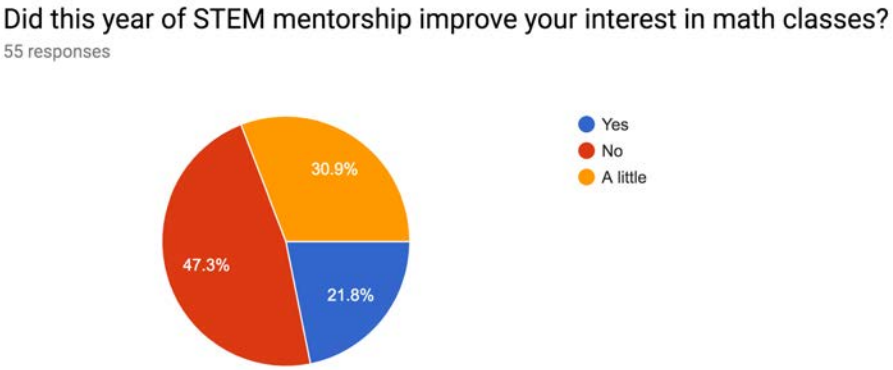
Goal: Students will elect to take more STEM college classes while in high school and/or beyond.



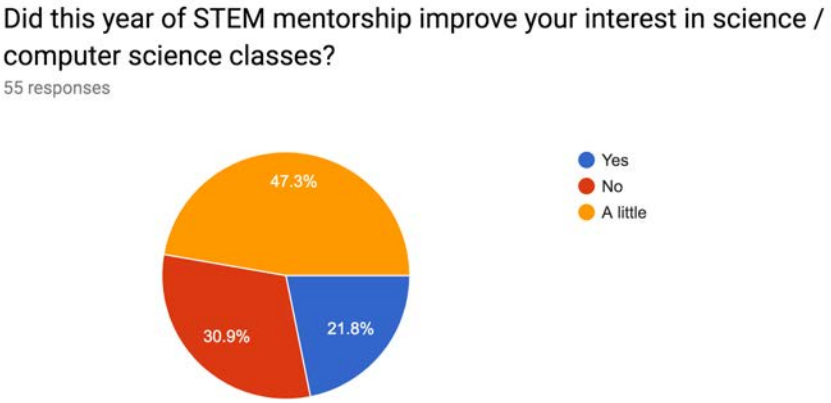
Were students inspired to take STEM classes at SFCC? 58% reported they were at least a little inspired. When asked if they felt inspired to take dual-credit STEM classes at Capital, 75% reported they were at least a little inspired. (Note that Capital High is a 100% free and reduced-lunch status school and transportation to and from SFCC may be an issue. This question has been clarified in the survey for the upcoming school year.)

Goal: For students to increase interest in math and science classes

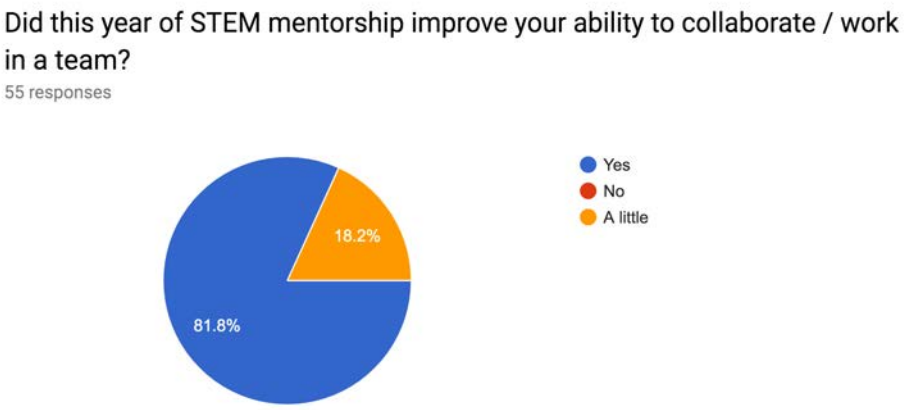
54% of students reported that this mentorship increased their interest in math class at least a little.



69% of 57 students reported that this mentorship increased their interest in science class at least a little. Something of note, 84% of students report at least a little interest in continuing to learn via hands-on STEM courses if they would be offered at their school. This indicates that there is greater interest in STEM when a hands-on approach is adopted.



Goal: Students will improve their 21st Century Skills such as teamwork, problem-solving, presentation/communication skills, and overall resiliency (a.k.a. growth mindset).



We asked the students to monitor their own learning via weekly reflections. After the mentorship was complete, we asked them to report if they felt their problem-solving skills had improved. 82% reported that yes they felt their problem-solving skills had improved, while 18% reported that they improved a little. 82% also reported that this mentorship increased their confidence when trying a new project (16% said a little, and 2% said no). 82% of students felt the mentorship improved their ability to collaborate in a team.

Goal for the mentors: To increase leadership and facilitation skills among STEM mentors.

Seven of the mentors who responded to the post-mentorship survey reported that on a scale of 1-5 they felt their leadership skills improved an average of 3.7. They also reported that on the same scale they felt their ability to facilitate a group of learners improved by 3.86.

What did the students say?

"I was able to learn new skills through a hands on project which I would have otherwise not had the opportunity."

"I did not know how fun STEM would be."

"This was definitely a turning point because it improved my interest in math and science."

"Some of the skills we learned include: precision, accuracy, coding, patience, how to effectively communicate, how to be a leader and especially teamwork."

"I learned about the importance of coding in our project. Coding is similar to writing and literacy but instead programmed into a computer."

"I learned and did things I have never done before."

"It helped me get a better understanding of STEM and the importance of it. I also liked the Meow Wolf trip."

"It has me interested in technology and working with solar."

Collaborators

Los Alamos NATIONAL LABORATORY EST. 1943

MEOW WOLF

NORTHERN NEW MEXICO COLLEGE EST. 1909

NORTHERN New Mexico College

SFCC SANTA FE COMMUNITY COLLEGE

SFPS Santa Fe Public Schools World Class City, World Class Schools!

STEM SANTA FE

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Opportunity Santa Fe Birth to Career

LANL FOUNDATION Investing in Learning & Human Potential