



GCSC STEM BICYCLE CLUB

270 students from 18 schools across Greater Cincinnati participated in GCSC's after-school STEM Bicycle Club during the 2015-2016 school year. Over the course of the 10-week, hands-on, project-based program students broke down and then reassembled bikes they earned the right to keep. Fun student learning was made possible by an education-standards aligned curriculum, inspiring math and science teachers, other school-based leaders such as resource coordinators and counselors, and volunteer coaches from area businesses and community organizations. Students built valuable STEM skills, increased problem-solving abilities, gained confidence, personally experienced the value of persistence, and learned more about STEM career possibilities. The club culminated with a region - wide celebration at the University of Cincinnati, a first campus visit for many students and their families.

24%

Increased interest in STEM careers

11%

Increased interest to work in teams

10%

Improved understanding in the value of learning new technologies & math

STUDENT IMPACT

Students discovered just how fun learning is when they took the unique opportunity to join STEM Bicycle Club. Excitement for bikes and mechanics grew with each screw they tightened and gear they assembled. Although challenges arose changing a break pad or pumping a tire they persevered and could always find a helping hand from their mentors or fellow students emerging as leaders. Their confidence grew as they persistently dug deep, and with some grit, overcame obstacles. For some students, the club helped them learn what career path to pursue as they look to the future. Students observed their participation in the club increased technical skills, interpersonal communication skills and confidence. Students had this to say:



"Just try STEM Bicycle Club and anything that STEM offers. You probably won't regret it!"

I've always been interested in engineering, and my brother said, "Oh, you can't do it!" and I bet him that I could and well, I did it and I'm bringing the bike home today and I'm going to wait for him to open his mouth until flies fly in it! "

It's fun, it's a great experience, & it's just a lovely way to express your inner engineer!

"What I like the most about my club is all of the mentors and everyone that came together to help out with this project"



There were a lot of challenges when we were in bike club; like when we had to do the gears, you had to shift the gears and make sure they kept going, and if they weren't you had to position them in a certain way. And the brakes, we had to move a wire through so we could get the brakes done. The teachers and all my friends helped me. "

"I had a lot of fun building my bikes and working with all the mentors and students. It's a good time! I learned a lot of new things, and acquired a lot of new skills, and there's a lot more that you just can't explain through words."



What Did Educators Think?

Educators and community partner's dedication to the STEM Bicycle Club was evident in their enthusiasm to get the gears turning and make the program a success. Club leaders quickly recognized the powerful impact the program was having on their students, especially the valuable relationships being built between the students and STEM professional mentors, the effect the club had motivating student engagement, and increased technical skills and improved problem-solving abilities. In their written responses educators and community partners shared their perspective on club benefits for students:



Some of the kids that have a knack for mechanical stuff and using the tools and have a feel for just getting the project done that day would finish their bike and help the next person or anyone that needed help that day. So I saw leaders emerge when we were in a crisis. ”

“They went far past the level of just being engaged. They were enthralled, to have these bikes, and to learn about each little system, and it was just awesome!”

“To see kids who had never put anything together before go in full force and be able to put together a bike and see their self-esteem rise- that was the most rewarding part of it”

“I think the STEM projects are really important because its hands-on experience with mechanics and really putting stuff they’re learning maybe in math or science into reality or perspective.”



Gave students something they all looked forward to and were excited about at school. Built authentic relationships between students and professionals, giving students exposure to what it takes to become an engineer, doctor, etc., and helping them see this really is possible with hard work.



Overall this was a wonderful and awesome experience for the youth, volunteers, and schools. Seeing youth fully commit, set a goal, work hard, and reach, it is magical!



Educators and Community Partners scored STEM Bicycle Club on a Lickert scale of 1-5; 1 being the lowest 5 being the highest:

