

BUILDING UNIQUE
INVENTIONS TO
LAUNCH DISCOVERIES,
ENGAGEMENT AND
REASONING IN STEM

TUSKEGEE BUILDERS ACADEMY

JUNE 23, 2019

INSIDE THIS ISSUE:

WHAT IS GOING ON AT THE SUMMER ACADEMY 1

WHY DO WE HAVE PEER MENTORS? 1

WEEK 2 OF THE SUMMER ACADEMY 2

COLLABORATIVE BUILDING 3

TEACHER HIGHLIGHT 4

MEET OUR PEER MENTORS 5

PEER MENTOR HIGHLIGHT 6

OUR NEAR-PEER MENTORS 8

WHAT IS GOING ON AT THE BUILDERS ACADEMY?



Students have been working hard to get their projects off

the ground. Week 2 of the summer Academy is a crucial week in which projects need to get started, materials determined, and plans adjusted to a realistic completion goal. Several groups have had to redesign their prototypes to meet their goals, and other groups

have begun building to then realize that they did not have a full list of materials. **Failures are an expected part of the invention process**, and students are encouraged to keep detailed records of things that have worked and things that did not work.

WHY DO WE HAVE PEER MENTORS? AND WHAT ARE NEAR-PEER MENTORS?

The BUILDERS program was designed based on three principles: Project-based learning, self-directed learning, and continued mentorship. Having students work in a makerspace meets the first two criteria: Students learn STEM principles by working on their projects and, in the process, they direct their own learning experience. The third criterion is met by having a set of students who have experienced learning in the makerspace return to the Academy and guide novice students through the process.

Learning to mentor others is an important 21st century skill, and some of our peer mentors have found that this experience is very valued in college applications (see Veronica's story in p. 6). We also include near-peer mentors, developing professionals who are completing their undergraduate or graduate degree and who have a large wealth of knowledge that helps participants progress with their projects and are at a life stage that approaches that of our participants.

A **mentor** is someone who allows you to see the hope inside **yourself**

—Oprah Winfrey

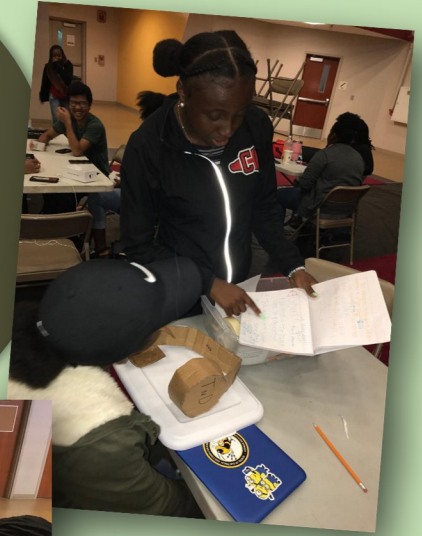
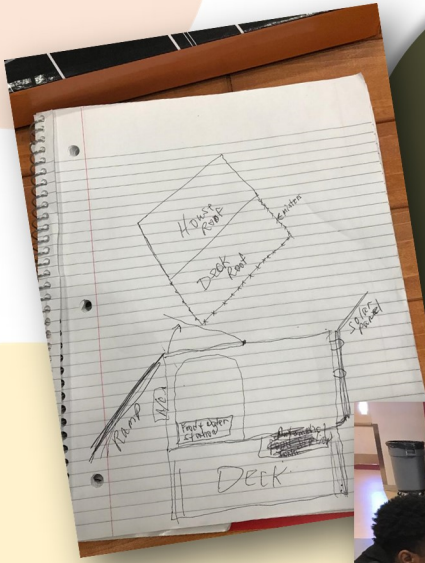
According to the National Mentoring Resource Center, having peer and near-peer mentors benefits both the students receiving mentoring and their mentors. Students who are mentored by peers improve their attitudes toward school, their relationships with peers and adults, and exhibit higher self-esteem. Successful peer mentors should have positive attitudes and motivations and, in combination with mentorship from teachers, the experience can be extremely positive for their mentees. Our peer mentors are carefully selected among applicants who exhibit strong leadership qualities and who can be inspirational figures for our participating students.

From left (Back): Jeffrey Smith, Zebulon Bell, Kendall Williams, Demetrius Finley, (Center) Veronica Sanders, Myaeshia Smith, Traverus Thomas, Ebony Nixon, JaMyia McNeil, Johnathan Mitchell, (Front) Lathen Oliver, and Destiny Brown.



Week 2 of the Summer Academy

Teams have continued to research, brainstorm, and revise their designs. Some strategy changes have been needed, but they all made good progress!



The most challenging part of the second week of the summer Academy is waiting for materials to be delivered, but as they arrive, construction moves forward rapidly.



Collaborative BUILDING



Teams began the actual building process in Week 2. By the end of Week 3, they should have a preliminary version of their prototype.

Head peer mentor in action!
Lathen assists two teams with
their tech needs

Teacher Highlight

JATORIA WASHINGTON-FLOYD



Mrs. Washington-Floyd is a native of Tuskegee, Alabama. She has a B.S. in biology from Tuskegee University, and both an M.S. in Biology Education and an Educational Specialist degree in Biology Education from Alabama State University. Mrs. Floyd is married to Mr. Jarvis Floyd and they have 2 daughters and one son. Mrs. Floyd has been on faculty at **Booker T. Washington High School** for the past 13 years, and currently she serves as the Departmental Chairperson. Mrs. Floyd teaches Biology and Environmental Science to 10th and 11th grade students and, for the past 12 years she has also served as the auxiliary coordinator for the Marching Aristocrat Band. Mrs. Floyd has been a part of a variety of science programs that serve her community at Tuskegee, including the Tuskegee University RET Program, Health College Connection, Future Nurses of America, and has been part of Project Upward Bound Math and Science at both Tuskegee and Montgomery, Alabama.



MAUDELE POU



Ms. Pou is a long-time resident of Montgomery, Alabama. She received her B.S. degree from Virginia State University and a Master's of Biology Education from Alabama State University. Ms. Pou has worked on numerous research projects at the Los Alamos National Laboratory in Los Alamos, New Mexico. In addition to conducting research, Ms. Pou enjoys teaching middle school and high school science. Some of her hobbies include playing and watching basketball, and learning about and creating innovative inventions. Her desire for the students in the BUILDERS Academy is that a flame is ignited within the participants to become lifelong learners and inventors. Although Ms. Pou will be departing **Notasulga High School** this summer, she will continue mentoring her students through the academic year.



CICELY DIXON-ABRON



Mrs. Dixon-Abrón is a native of Phenix City, Alabama. She has a B.S. in Mathematics and Computer Science and an M.S. in Computer Science from Alabama A&M University. After completing her M.S., she worked for Lockheed Martin in Owego, New York, as a software engineer but, due to the 9/11 attacks on the World Trade Center, she moved closer to home and began working as a mathematics teacher in Orlando, Florida. Although her plan was to become an engineer, her passion of educating and empowering students became her "first love." Mrs. Abrón continued her education with a M.S. in Mathematics Education from Alabama State University, and a M.Ed. in Instructional Leadership and Educational Administration at Troy University, Alabama. Mrs. Abrón is currently part of the Phenix City, Alabama school system, where she has been an instructional coach at Westview Elementary School, an anointed mathematics teacher at South Girard School and, currently, she educates and empowers the mission of "pursuing excellence in every student everyday" at **Central High School**. Mrs. Abrón is the proud mother of three kids, M'Ki-yah, Ciniyah and Trent. She is also a member of Delta Sigma Theta Sorority, Inc. Mrs. Abrón describes herself as dedicated, devoted, and committed to the vision of supporting all students.

Meet our Peer Mentors



Traverus Thomas

Traverus is a senior at **Booker T. Washington High School**. He is one of our **returning peer mentors**, and as a tech savvy budding entrepreneur, he provides academic and professional mentoring to our students.

Traverus is one of the students who has most definitively helped shape the BUILDERS program, and his enthusiasm is very evident. We asked him to describe his experience with the BUILDERS program, and here is what he had to say:

"BUILDERS means the world to me; in fact, I secretly clear my schedule every summer so I can be available in case I'm asked to return. For me, the Academy provides a place where I can apply all of my electrical engineering concepts as well my software side. In addition to this, BUILDERS teaches me the im-

portance of teamwork, networking and love! See, since my first day attending BUILDERS way back in the summer of 2017, I've grown tremendously! In fact, when I first began BUILDERS I didn't have anything!!!! No network, no colleagues... heck, I didn't even have the basic tools to test my engineering skills; but BUILDERS saved me. The Academy truly became my safe haven and provided me with all the tools that I needed; and I even made friends along the way! In all, BUILDERS has been my summertime home away from home. I plan to attend college at the prestigious Howard University and major in computer science with a minor in electrical engineering. Though I'll be away from home...I will continue to carry the BUILDERS torch and be sure to let its light shine on!"



Flashback to 2017! Traverus Thomas and Lathen Oliver starting their "lunch and STEM" tradition. Lathen is currently serving as our head peer mentor.

Destiny Brown

Destiny is a Junior at **Notasulga High School**. She was a participant in the BUILDERS Academy in 2018-2019, and was selected as a peer mentor due to her leadership skills and service orientation. When we asked Destiny to tell us about her experience with the BUILDERS Academy, she said, *"Just last year I was a participant in the Academy and I didn't know much about STEM. The BUILDERS Academy gave me new experiences and much knowledge about STEM. Throughout the summer Academy, I was very frustrated because our project wasn't working, but as we continued to work on it, everything seemed to come together. I had lots of fun, learned how to work as part of a team, and how to be open to all ideas. I had a great time, made new friends, and had many new experiences. I gained much knowledge and I wanted to come back and share the knowledge I gained with others. I am currently a Junior, and when I graduate I would like to attend the University of West Alabama. I hope to get a full academic and athletic scholarship to become an athletic trainer and play basketball. I am also dreaming of a possible career path in music to become a female R&B artist."*



Learn more about the BUILDERS peer mentors in Issue 9 of our newsletter! All issues of our summer newsletter are available at www.tuskegeebuildersacademy.org/program-newsletter.html

Peer Mentors Highlight

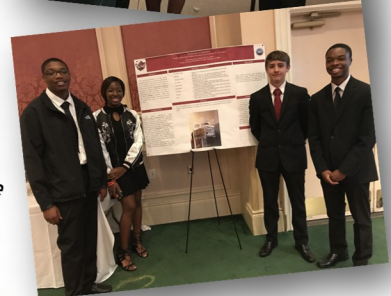
This week, we continue to proudly highlight our peer mentor graduates. They all exemplify our high standards of academic excellence, outstanding leadership, and service orientation.

Veronica Sanders



Veronica graduated in the spring of 2019 from Central High School. This summer marks her third year of participation at the Academy (she is one of our **returning peer mentors**). Veronica was selected as part of the first group of peer mentors because of the exceptional motivation and leadership she displayed as an Academy participant. As a first-year peer mentor, she did not disappoint, spending very long hours working with our teams in every aspect of design and construction of their prototypes (she will never forget the hours she spent at the sewing machine!) and has become an expert at managing the very limited budget of the teams she mentors. We are very proud of Veronica's accomplishments, and will miss her greatly as she moves on to the next stage of her education. Here's what Veronica had to say about her three years as a BUILDER.

"I decided to return to mentor again to relay my experiences to upcoming seniors and students who see themselves pursuing a career in the healthcare field. I'm currently a Certified Clinical Medical Assistant, a CPR and BLS Certified teacher, and a Precepting Phlebotomist. I am enrolled at Chattahoochee Valley Community College will attend The University of Alabama at Birmingham in the fall of 2019, where I plan to major in Biology. I recently graduated from Central High School ranked number eight out of almost four hundred students in my class. Before graduation, I was accepted into the Science and Technology program at The University of Alabama at Birmingham's Honors College. Out of hundreds of students interviewed, only sixty-four students were selected for participation in this prestigious program, and I was one of those sixty-four. I am accepting a Collegiate Honors Scholarship and a Federal GI Dependents scholarship that will cover my full tuition. My prior involvement with the BUILDERS Academy was a major factor in why I was chosen to be a part of the Science and Technology program. After I obtain a bachelors in Biology, I plan to attend UAB's Medical School, with a goal of specializing in Pediatrics or Obstetrics. I am forever grateful to the BUILDERS Academy for strengthening my love for science and engineering and giving me many priceless opportunities."



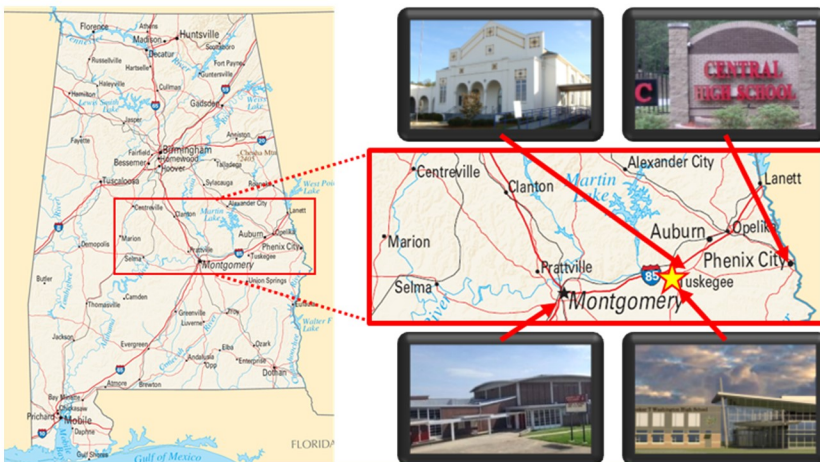
Jeffrey Smith

Jeffrey graduated in Spring 2019 from Lee High School (Montgomery). He was a participant in the BUILDERS Academy in 2018-2019. His upbeat attitude, motivation, and work ethic were key factors on his selection as a peer mentor. Jeffrey was a member of the Lee Generals football team, and managed to attend our full-day Academy and keep his training schedule in the summer of 2018, becoming an example of how motivation can lead students to manage multiple and very demanding responsibilities. Jeffrey's passion was Biology, and he will continue pursuing his passion as a Biomedical Engineering major at Alabama State University (Montgomery), where he will attend on a Presidential scholarship. We asked Jeffrey to describe his experiences as a BUILDER, and here is what he had to share.

"I plan on attending Alabama State University in the fall. I was blessed to receive a President Incentive Scholarship, which will cover the full cost of my tuition. The major I plan on pursuing is Biomedical Engineering. The reason for me to select this field of study is because it is a mix between my two favorite subjects, which are science and math. I chose to become a mentor because I felt it would be a great experience and a great chance to interact with others. This program last year helped me see the variety of ideas others might have, and how great it is to combine ideas to get the bigger picture of the problem you are trying to solve."



WHERE DO OUR BUILDERS COME FROM?



Our students come from 4 high schools in East Central Alabama (clockwise from top left): Notasulga High School (Notasulga), Central High School (Phenix City), Booker T. Washington High School (Tuskegee), and Lee High School (Montgomery). All schools are within a one-hour radius of Tuskegee University, and the support of their administration and staff has been essential for the success of the BUILDERS program.

Our near-peer mentors



Zebulon (Zeb) Bell is a native of Valley, AL. He has a B.A. in Psychology from Auburn University and an M.S. in Experimental Psychology from Georgia Southern University. He is currently pursuing a PhD in Psychology at Oakland University, Michigan. His participation in the BUILDERS program highlights his interest in working with young scholars in his home state to increase their opportunities to pursue STEM careers and further their education.

Our near-peer mentors are undergraduate and graduate students who help motivate and guide the participants at the Academy, assist with materials selection and management, and “get their hands dirty” in the building process. They are definite student favorites, and their help is essential to the success of the program



Demetrius Finley is a native of Detroit, Michigan. He joined Tuskegee University in 2012, where he obtained a B.S. in Chemical Engineering and an M.S. in Chemistry. Demetrius will be attending Iowa State University in the Fall to pursue a Ph.D. in Chemistry. Demetrius has been a near-peer mentor at the BUILDERS Academy since 2017.



Johnathan Mitchell is a native of Atlanta, Georgia. He is currently an undergraduate student at Tuskegee University, pursuing a B.S. in Mechanical Engineering with a Minor in Material Science Engineering. He will continue attending Tuskegee University to pursue a Masters in Materials Engineering in Spring 2020, and once he graduates, he will be a Commissioned Officer in the United States Navy.

The Tuskegee BUILDERS Academy is funded by Grants DRL 1657399 and DRL 1657123 from the Innovative Technology Experiences for Students and Teachers (ITEST) program of the National Science Foundation. Any opinions, findings, and conclusions or recommendations expressed here are those of the authors and do not necessarily reflect the views of the National Science Foundation.



Learn more about the BUILDERS Program!

TUSKEGEE BUILDERS ACADEMY



Building unique inventions to launch discoveries, engagement, and reasoning in STEM



www.TuskegeeBuildersAcademy@gmail.com



www.TuskegeeBuildersAcademy.org



@TUBuilders