



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

# TUSKEGEE BUILDERS ACADEMY

JULY 6, 2018

## THE SUMMER ACADEMY HAS COME TO AN END

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The summer Academy came to an end on June 29th. Our BUILDERS teams presented the preliminary version of their prototypes, and we were blown away by how far they made it in a short three weeks! All prototypes were either functional or had been developed enough

that their purpose and function was clear. Our teams will continue working through the Academic year (with the guidance and support of their teacher mentors) to refine and complete their prototypes. The products from these year-long projects will be presented in a

showcase that will take place in the Spring.

### LEARNING BY DOING

Learning by practical experience was a strong theme at Tuskegee from its inception. Carver was particularly convinced of the value of this method; he became known for projects which encouraged students to "figure it out for themselves."

*Quote from the G.W. Carver museum, Tuskegee University.*

## THE 2018 BUILDERS



## IS THIS ISSUE OF THE NEWSLETTER LATE?

Yes, it is! We had so much to share that it took a few extra days to get ready. In this issue, we wanted to highlight "life" at the Academy, and showcase the growth and development of our 10 teams.

Our next newsletter will be published in December and will showcase the progress that our teams are making through the school year. You can access the newsletter at our website, or by subscribing to our

distribution list.



[www.TuskegeeBuildersAcademy.org](http://www.TuskegeeBuildersAcademy.org)



# Our BUILDERS get visitors

The BUILDERS Academy is not open to the public, but we do get visitors. During the last week of the Academy, our BUILDERS presented their projects to the Dean of the Tuskegee University College of Arts and Sciences, Dr. Chana Prakash, the Tuskegee University Vice President for Research and Dean of Graduate School, Dr. Shaik Jeelani, and the Superintendent of the

Macon County School District, Dr. Jacqueline Brooks. We were also very proud to host two visitors from the National Science Foundation: Dr. Monya Ruffin-Nash, the Program Officer for the ITEST award that supports the BUILDERS program, and Dr. Elizabeth VanderPutten, the Deputy Division Director of the Division of Research on Learning in Formal and Informal Environments (DRL).



Dr. Prakash's visit



Dr. Brooks' visit



Dr. Jeelani's visit



Dr. VanderPutten & Dr. Ruffin-Nash's visit







*Problem selected:* Create an efficient and inexpensive water filtration system.

*Solution proposed:* Collect, filter, and purify the rainwater that would normally run off the sides of a home.



Team Mighty Devils



*Problem selected:* Create a tent/backpack system that can be used by the homeless for shelter and privacy.

*Solution proposed:* Collapsible tent and duffel bag with reflective materials for temperature control.



Team Incredibles



*Problem selected:* Develop a device that can be powered with an alternative source of energy.

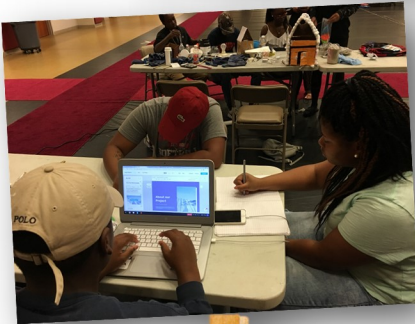
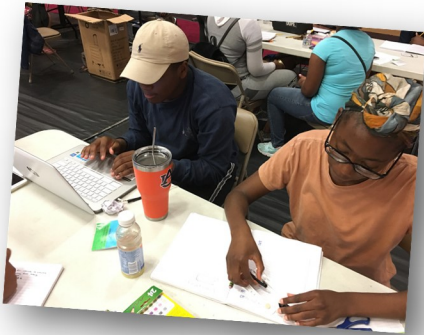
*Solution proposed:* Use solar energy to charge a battery that powers a stove.



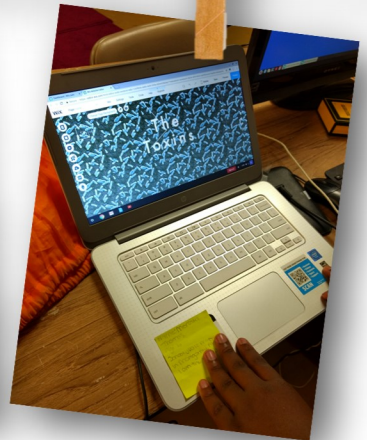
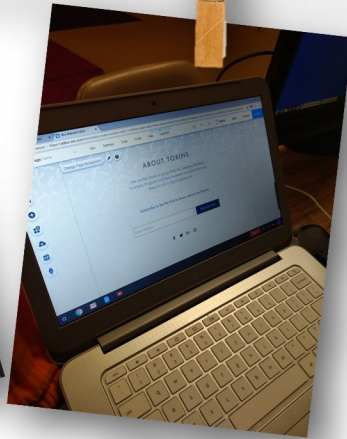
Team C4







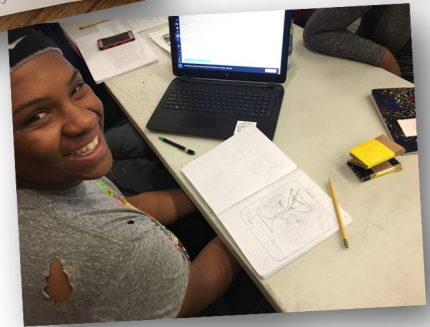
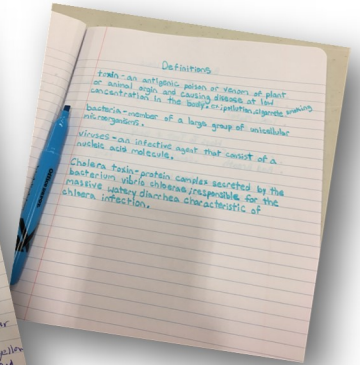
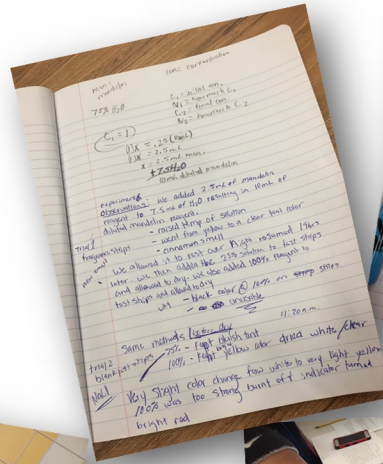
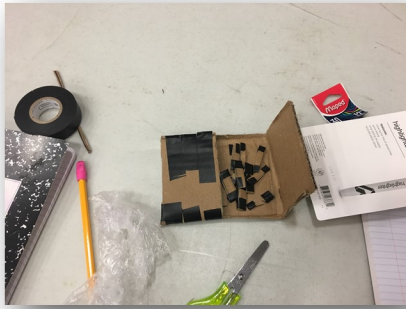
# Team DIToxins



*Problem selected:* Develop a way to test for bacteria, viruses, or toxins.

*Solution proposed:* Develop an inexpensive, portable device to detect e-Coli in food.





*Problem selected:* Develop a way to test for bacteria, viruses, or toxins.

*Solution proposed:* Develop an inexpensive, portable device to detect drugs in beverages.



# Team Detoxinators





# Team Homeless Helpers

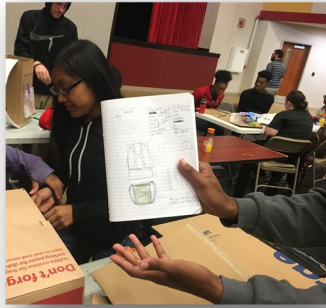


*Problem selected:* Create a tent/backpack system that can be used by the homeless for shelter and privacy.

*Solution proposed:* Collapsible tent and lightweight backpack with a rain hood.







# Team Mommy & Me

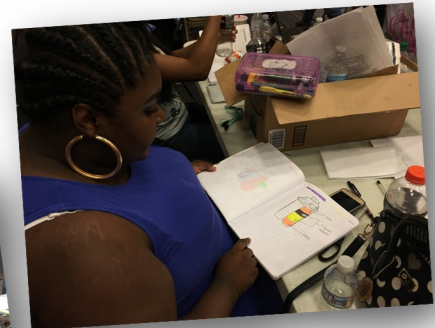
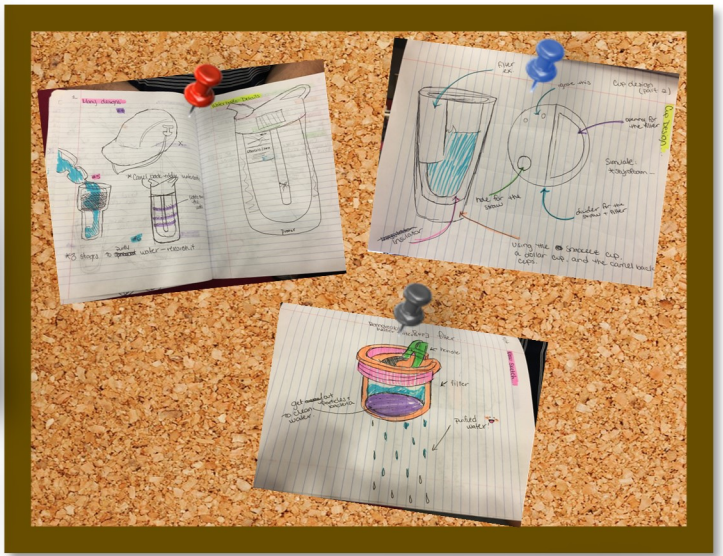


*Problem selected:* Create a tent/backpack system that can be used by the homeless for shelter and privacy.

*Solution proposed:* Create a survival kit for parent and child that fits in a backpack.







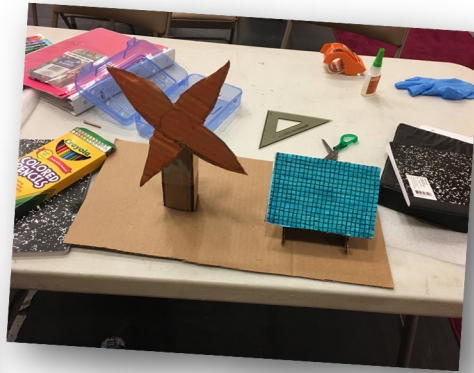
*Problem selected:* Create an efficient and inexpensive water filtration system.

*Solution proposed:* Develop a hat cup with a mini-filtration and purification system.

# Team NJKT Innovations







*Problem selected:* Develop a device that can be powered with an alternative source of energy.

*Solution proposed:* Use solar energy to charge a battery that powers a portable fan.



# Team Eco-Innovations





# Team The Inventors



**Problem selected:** Create an efficient and inexpensive water filtration system.

**Solution proposed:** Develop a filtration and purification system that fits into a carrying case for ease of transport.



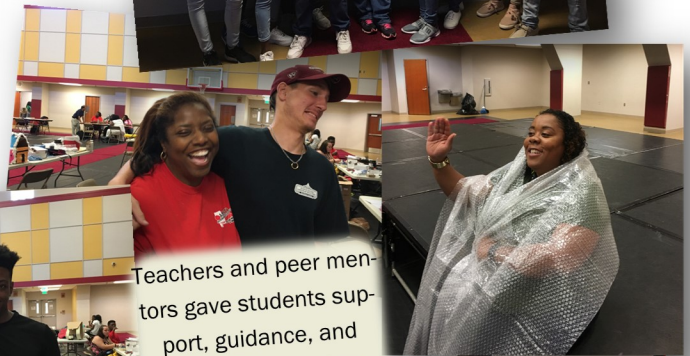


# Was it all work?

Days at the summer BUILDERS Academy are long, and our students work really hard. However, it was not all work. Students had the opportunity to visit the George Washington Carver Museum at Tuskegee University, made new friends, and shared many fun moments with their peers, mentors, and teachers.



Ever wondered what would happen if you give your students a broom and a stage? Or if you tell them to stand still for a picture?



The supplies room became a favorite place to socialize. However, having other groups working in close proximity gave many opportunities for socializing.





## WHEN DID THE TEACHING HAPPEN?

In a makerspace, teaching is incidental and occurs naturally as students work on their projects. Students received support from their science and math teachers, their peer and near peer mentors, and faculty from Tuskegee University and Oakland University. Most importantly, they learned from each other and their own process of discovery.



## OUR PEER- AND NEAR-PEER MENTORS

We can't end the summer without recognizing again our peer- and near-peer mentors. These students were selected because of their extraordinary performance in the 2017 Academy (peer mentors) and a related program (near-peer mentor). Their commitment to the 2018 Academy was exceptional, and they were essential to the success of this year's projects. A group of 2018 BUILDERS participants will be invited to serve as peer mentors for the 2019 Academy.



From left: Janica Brooks and Traverus Thomas (Booker T. Washington High School), Delayna Harris (Tuskegee University), and Veronica Sanders and Lathen Oliver (Central High School).

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# TUSKEGEE BUILDERS ACADEMY

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

[TuskegeeBuildersAcademy@gmail.com](mailto:TuskegeeBuildersAcademy@gmail.com)

[www.TuskegeeBuildersAcademy.org](http://www.TuskegeeBuildersAcademy.org)

@TUBuilders