



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

TUSKEGEE BUILDERS ACADEMY

JULY 21, 2017

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THE ACADEMY STARTED JUNE 29th... WHAT HAVE WE DONE SO FAR?

- We've discussed makerspaces, e-portfolios, creativity, intellectual property, and teamwork
- A first making experience asked students to create a sound box under tight time constraints and with minimal materials
- Student teams selected a problem affecting their communities and began designing a solution for that problem
- Teams have started working on their prototypes



First making experience: Sound boxes

Can you fully muffle the sound of a ringing cellphone in three hours with minimal materials?

With common materials such as cardboard, foam, bubble wrap, and fabric, students were able to decrease the 24 dB sound of a ringing cellphone to an incredible 0.5 dB. A discussion then followed on the properties of sound production, transmission, and perception.

WHERE TO FIND INFORMATION ABOUT THE BUILDERS ACADEMY?

Visit our website: www.TuskegeeBuildersAcademy.org
E-mail us: TuskegeeBuildersAcademy@gmail.com



@TUBuilders

Why was there no newsletter last week?
There were some delays with photography release forms, but we are back on our biweekly schedule

Working in teams to find a solution

WHAT ARE WE MAKING?

Problem 1: Develop an inexpensive water purification system

What is our task?

Choose a problem, come up with a solution to the problem.

How do we do that?

Research the problem, make a design, get the materials, develop and test a prototype.

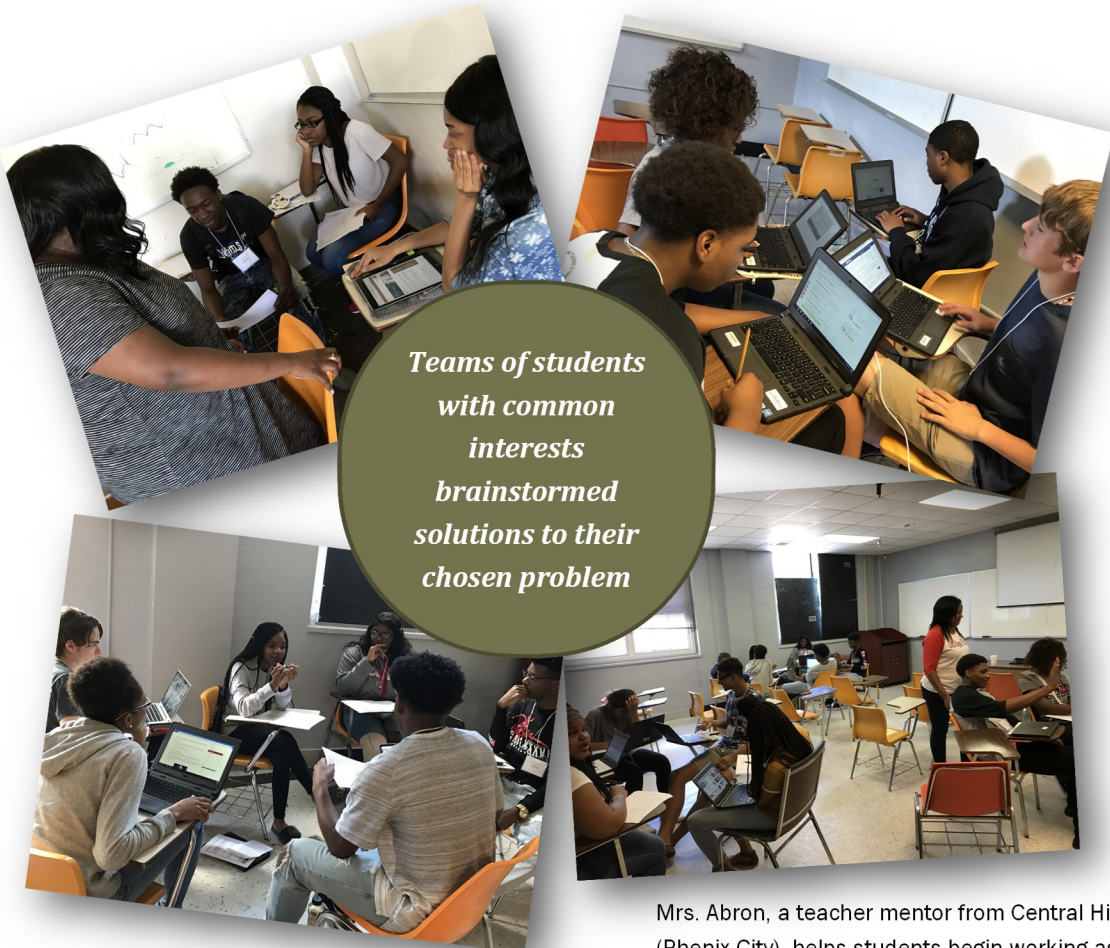
What are the rules?

Let our imagination run free.

Problem 2: Make a waterproof system to track pets that can be attached to their collar

Problem 3: Create an effective and inexpensive battery with minimal ecological impact

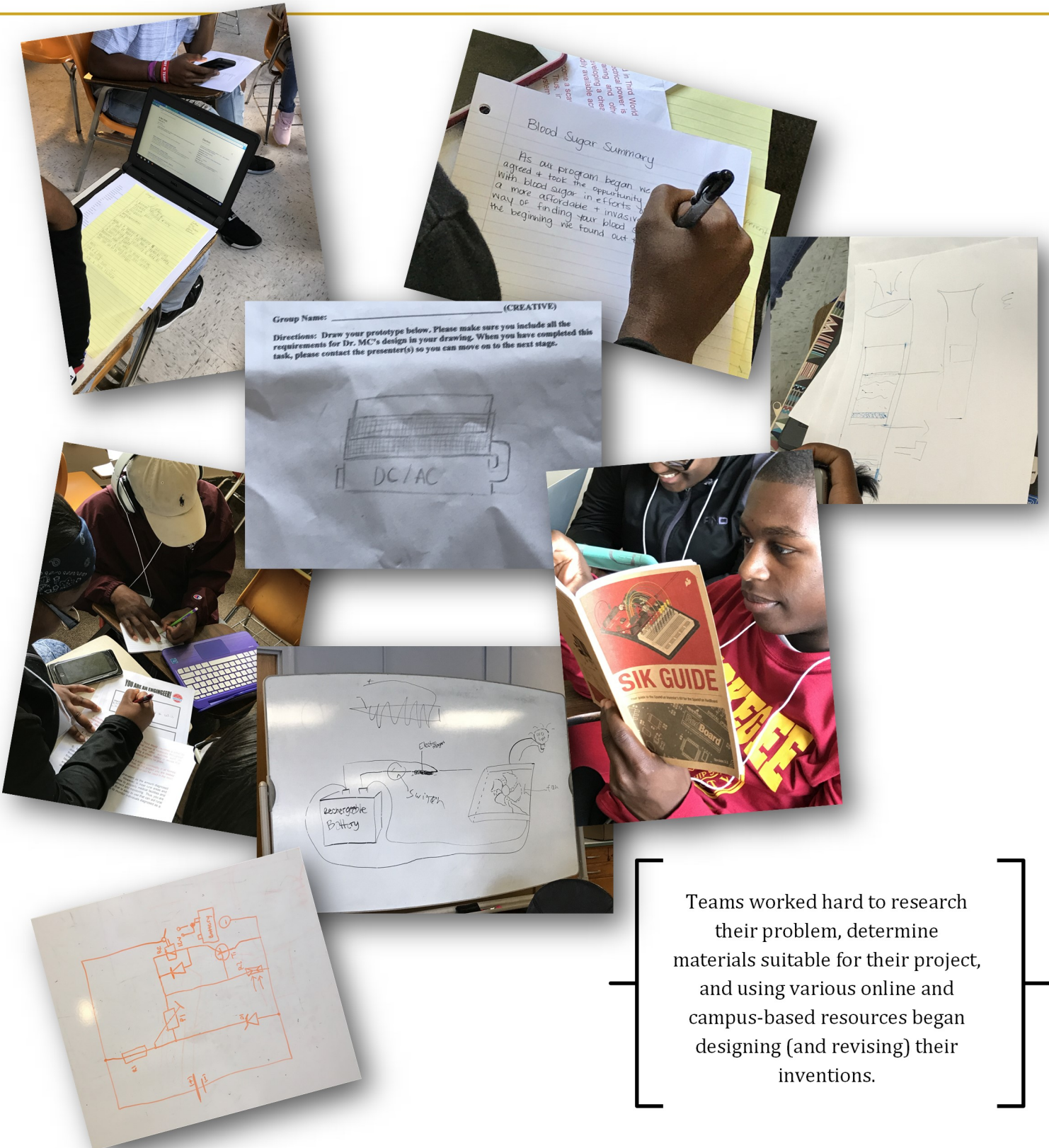
Problem 4: Invent a non-invasive method to track blood sugar in individuals with diabetes



Teams of students with common interests brainstormed solutions to their chosen problem

Mrs. Abron, a teacher mentor from Central High School (Phenix City), helps students begin working as a team.

Where to start? Research & design

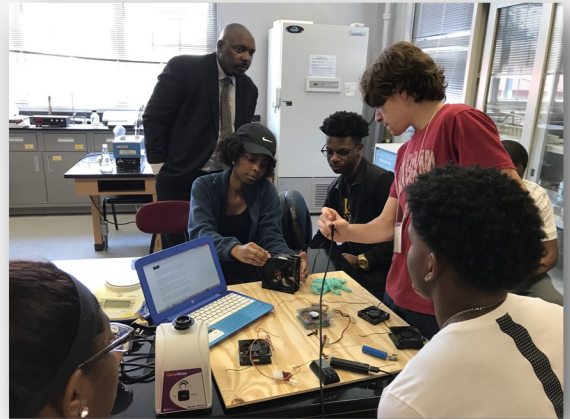


Group Name: _____ (CREATIVE)
Directions: Draw your prototype below. Please make sure you include all the requirements for Dr. MC's design in your drawing. When you have completed this task, please contact the presenter(s) so you can move on to the next stage.

DC/AC

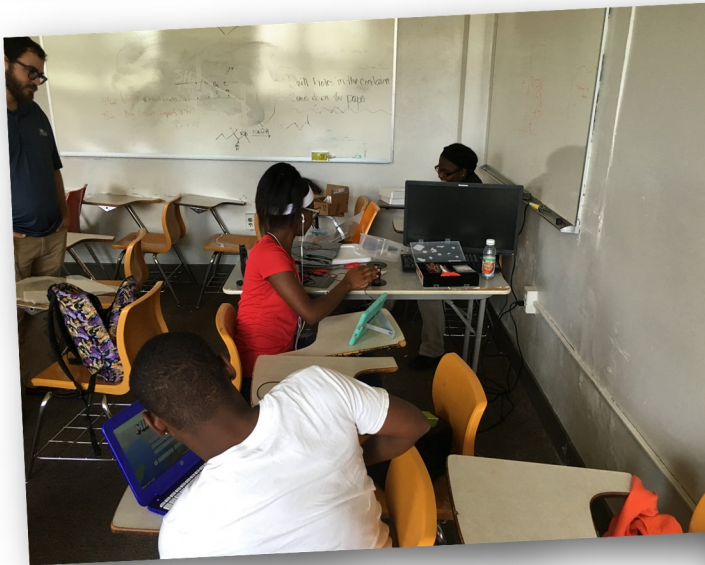
Teams worked hard to research their problem, determine materials suitable for their project, and using various online and campus-based resources began designing (and revising) their inventions.

**KINETIC ENERGY
POWERED BATTERY**



Students described their project to Mr. Philip Wright, Assistant Scout Executive, Boy Scouts of America.

**SOLAR CELL
POWERED BATTERY**



Students receiving assistance from Ms. Player, a teacher mentor from Booker T. Washington High School (Tuskegee).



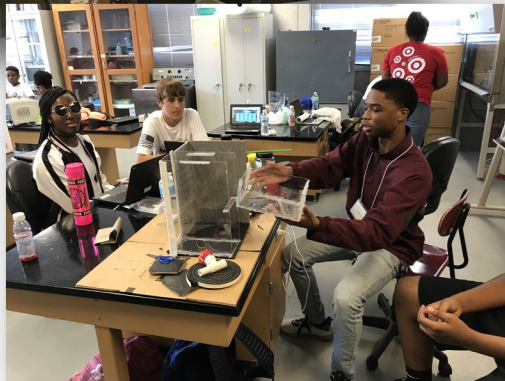
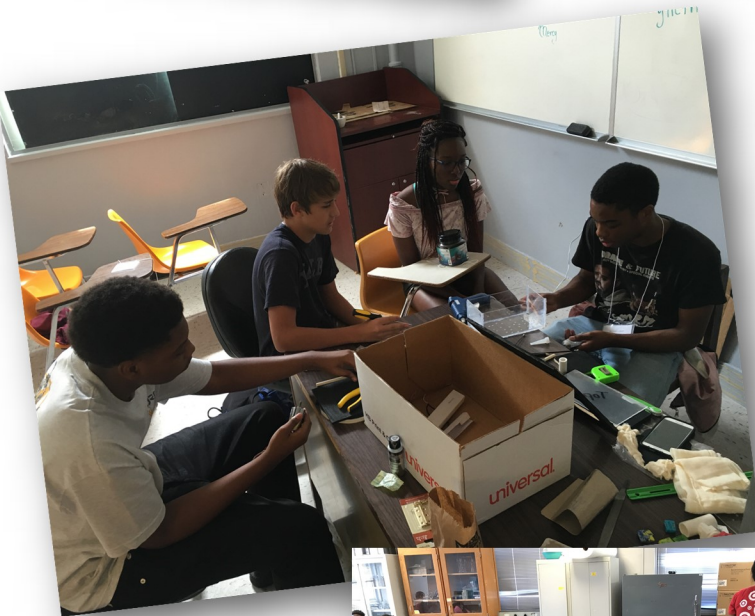
Making designs into products

**NON-INVASIVE
BLOOD SUGAR
DETECTION**



Students receiving assistance from Mrs. McNeely, a teacher mentor from Booker T. Washington High School (Tuskegee) and Tuskegee University Engineering graduate student Donald White.

**WATER FILTRATION
AND PURIFICATION
SYSTEM**



Students are using different technologies and mixed materials to obtain a high-effectiveness and low-cost product.

GPS-BASED PET-TRACKING SYSTEM



Students described their project to Mr. Philip Wright, Assistant Scout Executive, Boy Scouts of America..

AND NOW... WHAT?

The Academy will come to an end on Friday July 21st. Our students have worked really hard, but are not content with the current state of their products. Thus, they will continue working as teams through the Fall to complete the product satisfaction.

This means that the Student Showcase (initially scheduled for July 21st) will take place later in the Fall (date and location to be announced).

Overall, the Academy was a great success. Students, teachers, and Academy personnel learned a great deal about teamwork,

making, and solving problems.

A call for applications for the 2018 Academy will be sent out in early Spring of 2018. Until then, we will continue tracking our 2017 teams and reporting on their achievements.

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