



Inspiring Students and Growing our Team

Hello Friends! September marked one year since we held our formal launch event at Purdue University. What a remarkable time! We are indeed grateful for the many friends and supporters that have crossed our paths ever since. This year, we've been working really hard to restructure our organization to optimally function and provide value to our students. Some highlights of our work so far are:

- Expanding to two additional African nations — Nigeria and Kenya.
- Conducting some fun STEAM activities at partner schools.
- Growing our team to include Directors of Engagement (DOEs) in the African nations.

Partner with us by Donating Today

Introducing Our Work in Kenya and Nigeria

We are pleased to announce our presence in Kenya and Nigeria (in addition to Zimbabwe and Tanzania, where we've been operating).

Amagoro Girls Secondary School is part of the Teso district in the Western province of Kenya. The first workshop we

held was attended by about 100 students!

Olivet Baptist High

School (formerly Oyo Baptist Boys' High School) is located in Oyo, Nigeria. The school was founded by American Southern Baptist Missionaries in 1945. The first workshop we held was attended by about 300 students! As of mid-October, we have conducted three workshops at the school.



1H2019 STEAM Activities

Celebrating π day

March 14th is known worldwide as Pi day to celebrate the math constant π : 3.14 (or 22/7). π is the ratio of the circumference of a circle to its diameter.

• For each of these circles $\pi = 3.14159265358979323\dots$

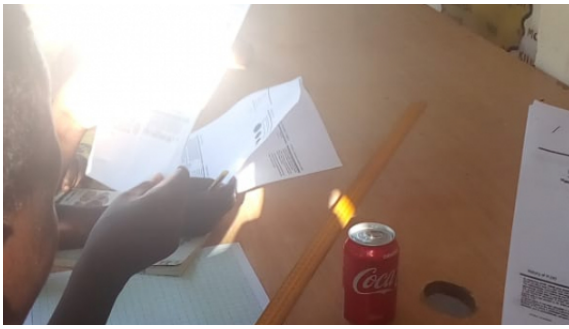


For Pi day, we held a math activity that showed a fun way to learn about this constant. Students first conducted a challenge to see who could remember the most digits of pi. Next, students were given soda cans and asked to calculate pi, per instructions. Of course, the soda and some snacks were theirs to consume afterwards.

Space Mathematics



Did you know that all 4 countries where we operate have space programs? This was news to the students, as these programs were established not too long ago. We wanted the students to know that they too can become astronauts one day! Students conducted an activity on space mathematics, where they learned how to map the path of the Curiosity Rover on Mars. They also learned about Dr. Mae Jemison, the first African American female astronaut in space.



Top Left - students @ Amagoro(Kenya) find creative ways to calculate pi using a can of coke. **Top Right** -Students at GSH (Zimbabwe) work out Space Math to calculate the path to land a rover. Photo credit @Tatenda Kanengoni. **Bottom** - Students at OBHS (Nigeria) gather together for their first workshop.

Fall 2019 STEAM Activities

The Joule Foundation is determined to finish this year strong! We have re-designed our STEAM workshops to complement what students are learning in class. In addition to the workshops, each school will get to experience one learning event of their choice, such as an educational movie viewing or a STEAM site tour.



The following are workshops we are running and the principles they aim to introduce:

Physics: CATAPULT

Structural design, momentum, conservation of energy, targeting, accuracy and precision in engineering design

Chemistry and Geography: VOLCANO

Evolution of volcanos, use of chemical reactions to represent geophysical activities

Biology and Chemistry: DNA SEQUENCING

DNA sequencing and extraction

Physics: ELECTRICITY and CONDUCTIVITY

Electrical conductivity and circuitry

Math: LINEAR REGRESSION

Graphing, linear regression, design of a bungee jumping activity

Each workshop is designed not only to expose and broaden the practicality of in-class learning, but also to *illuminate the possibilities of future academic pursuit and prospective career paths.*

Meet Our Directors of Engagement

Interview with Ms. Tatenda Kanengoni - DOE in Zimbabwe

TJF: Tell us a little bit about yourself.

Tatenda: I am a Zimbabwean media and communications practitioner who is on a mission to document and write the African story into history. I am particularly passionate about arts and culture and their roles in development.



TJF: What made you decide to join TJF?

Tatenda: I joined TJF because the organization's mission to promote STEM education amongst African girls is something I truly believe will steer the continent forward. Inclusion of women in all strata of society including STEM education is long overdue, and I am proud to be associated with an organization that is doing just that.

TJF: From your experience, what is the most rewarding thing about implementing STEM workshops in schools?

Tatenda: The most rewarding experience about implementing STEM workshops in schools is seeing the looks on the student's faces in realizing

that anything is achievable and their dreams of actually becoming an aerospace engineer or neurologist are actually possible. At some point in the beginning it almost seemed as if the girls had doubts that such a reality was possible for them, as if it was out of reach, but through the panel workshop held where women in some of these fields spoke to the girls about their journeys and limitless possibilities, this reality slowly started to sink in and watching them grow has been priceless.

TJF: What would you like to see as the future of STEM in girls' education?

Tatenda: I would like to see STEM education fully embedded in the curriculum from lower levels (Early Childhood Curriculum) and to include more practical aspects such as workshops and links between schools and the corporate world so that it becomes normalized that this is a path accessible to girls.

Interview with Mr. Olanrewaju (Lanre) Yusuf - DOE in Nigeria

TJF: Tell us a little bit about yourself.

Lanre: I'm a native of Kwara State, Nigeria. I attended Deniz Secondary School, Agbado for my secondary school certificate (SSCE) . I'm a graduate of University of Ilorin where I bagged a Bachelor of science Education Bsc(ed) in Health. For my deep zeal to attain the PhD level, I proceeded to study at the Kwara State University, Malete where I obtained a Masters in Educational Management and Leadership.



TJF: What made you decide to join TJF?

Lanre: I joined the Joule Foundation because I strongly believe that it's a platform that is helping to groom African school Girls in Science, technology engineering art and mathematics (STEAM) through practical, hands-on science education and experimental programs that implement cooperative learning in under-resourced schools in Africa.

TJF: From your experience, what is the most rewarding thing about

implementing STEM workshops in schools?

Lanre: It will open new career opportunities for participants, it would make Africa education system dynamic, and it would improve access to pragmatic (practical) learning.

TJF: What would you like to see as the future of STEM in girls' education?

Lanre: To be innovators in the nearest future. Also, increase the number of girls in STEAM education.

Interview with Esther Mbibo - DOE in Tanzania

TJF: Tell us a little bit about yourself.

Esther: My name is Esther Mbibo a graduate architect in Tanzania, I decided to join TJF because of their ambition to help girls across Africa pursue STEM education. Few years back, as an orphan living in one household to another with minimal guidance, I was in a place which required their type of support and I couldn't get one. It was tough to pursue a career path with a lot of negative connotations from my surrounding environment. Thus, I promised myself that to my capacity, I will make this journey a lot easier for the younger girls.



TJF: From your experience, what is the most rewarding thing about implementing STEM workshops in schools?

Esther: The most rewarding thing about implementing STEM workshop is the probable chance of touching one kid's heart and changing her life forever by opening a window of unlimited possibilities.

TJF: What would you like to see as the future of STEM in girls' education?

Esther: I would love to see the future in this venture turning more exciting and a lot easier every day to access education in Tanzania. Organizations should keep on making moves to motivate girls in pursuing STEM education.

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