

# STEM for Growth

## GROUP MEMBERS

|                       |                       |                  |                      |
|-----------------------|-----------------------|------------------|----------------------|
| Sophie Carvalho (F15) | Yolandah Tulina (F16) | Mia Adriko (F15) | Janice Njuguna (F16) |
| Founder and leader    | Creative director     | Secretary        | Resource manager     |

## AIMS

- Empowering girls through STEM to pursue their passions in the respective fields.
- To improve their confidence, in general.



In order to broaden our understanding of our community, Mbaraki Girls Primary School, we conducted a needs assessment using two different methods; we conducted a pre-test to determine individual levels of understanding as well as strengths and weaknesses in regards to the different areas in STEM.

## SUSTAINABLE DEVELOPMENT GOALS

*Quality education* through moving from a theoretical to practical based learning. As opposed to conducting the sessions in their regular manner of teaching; listening and note-taking, we ensured that we introduced hands on experiments and activities using locally produced materials as resources.

*Gender equality*, we chose to focus on the girl child, particularly those aged 8-12 as this is a crucial age where not only do they begin to develop different passions that influence one's career choices, they become prone to the criticism and stigma from within the community, by encouraging them to pursue jobs on the STEM fields which are mainly male dominated.

## HIGHLIGHTS

We identified four major highlights that depicted an accurate representation of all our STEM for Growth sessions.

### Science: *Color changing flowers*

Roses placed in water containing orange food coloring, which changed the color of the roses' petals. Resulting in the formulation of a research question, hypothesis, method and conclusion to emulate correct protocol to a science experiment.

### Technology: *Computer interaction session*

Learning the basic computer skills, e.g. how to open, shut down and navigate a computer, among others. It acted as a foundation to future tech sessions as the girls had almost no experience in this sector.

### Engineering: *Building the tallest and sturdiest structures*

Provision of random materials to construct the tallest and sturdiest. Aside from short buildings or those that toppled over, there a group reflection to understand the importance of factors like a firm foundation to make a firm building and thick materials to have a good support system. This session including tons of analysis, evaluation and reflection which was rather new for the girls.



### Math: *Math based scavenger hunt*

Solving a series of math problems to gain clues to find the location of the grand prize. While enhancing the mental math, leadership and communication skills, they were expected to workout everything at top speed in order to lead their group to victory.

## FUNDING

STEM for Growth received funding from the service learning team at AKA,M. The office provided resources, venues, transport and supervision for free as these aspects were all covered by the school's service-learning budget.

## SKILLS ACQUIRED

Over the course of the 2 years, we held multiple sessions that enabled us to develop multiple skills, including:

- Reflective skills

Considering that our sessions were based off individual efforts, we alone, had to analyze situations and create our own solutions in case any problems arose. If sessions didn't go according to plan, we had to reflect in order to determine where, how and why we went wrong, to prevent something similar from occurring in the future.

- Communicative and collaborative skills

We simultaneously developed our communicative and collaborative skills because as we planned, carried out and reflected about the different sessions, we found that the only way to get things done quickly and efficiently could only be done through collaboration and effective communication. An example being the distribution of roles to different members to ensure collaboration but at the same time reducing free loading. Also, our WhatsApp group and shared google drive created in order to upload ideas, notes and questions that we felt were relevant to group.

- Leadership skills

Considering that each member of the group was originally part of another larger group that shielded us from doing much work or sharing ideas, we learnt to take on a more active role during all sessions when we formed the smaller group. As a result, us proving to each be a leader.

- Persuasive writing skills

When starting our project, we wrote a proposal letter to implement our project at Mbaraki girls primary school and in order for it to be successful, we had to be detailed and precise as well as include multiple, well thought out reasons as to why we would conduct our project in their school. Additionally, when booking venues and resources we had to fill a function request form where we were required to give detailed descriptions of what we needed and why in order to convince the service-learning team.

## IMPACT AND EXTENSION

STEM for Growth has had a very large impact on the Mbaraki Girls Primary School community. Not only was this observed in increased confidence levels; the girls were more comfortable with taking on leadership roles, expressing their opinions asking questions. The girls also showed a significant improvement between the Pre-test and post-test with majority scoring up to 15% higher. Lastly, we received a lot of positive community feedback from the teachers, parents and older students who mentioned that there was an increased interest in the different STEM classes, and STEM related jobs. It is evident that we were able to mitigate majority of the challenges that we observed during the needs assessment, as mentioned above, thus resulting in the belief that our project has been a success.

Due to our project's success in the Mbaraki Community, we feel that it should be implemented in areas that have similar needs and would benefit from STEM for Growth as a project. As a group, we are currently planning our expansion to different girls' high schools and primary schools within Uganda, Tanzania and other schools located in Mombasa Kenya in order to break the stigma that only men can work in the STEM fields within our community.

