THE VISIOLA foundation

...catalyzing visionary leadership for Africa...

# Coding & Robotics Camp

*for girls*

***Brochure***

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***We aim to build girls' self-esteem and engage them in stimulating STEM activities. We enable the girls to work in teams to solve real-life challenges and provide experiences for them to succeed.***

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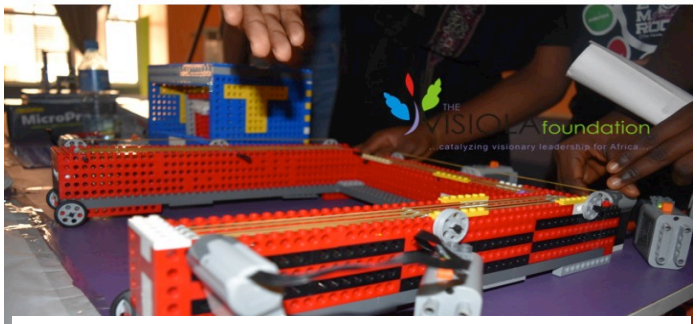

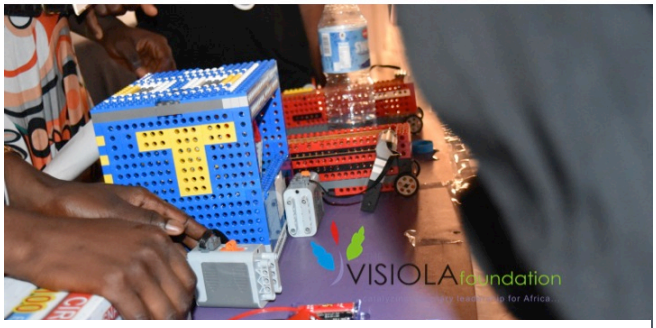

# ABOUT US

**The Visiola Foundation**, **a 2016 Google RISE© Award winner**, is a non-profit organization, registered with the Corporate Affairs Commission (CAC) in Nigeria with registration number: CAC/IT/NO/66782. The Foundation is committed to bridging the gender gap in the science, technology, engineering, and math (STEM) fields to help boost Africa's technical skills base for long-term and sustainable socio-economic transformation. Research shows that, ***"when you educate a girl, you educate a nation."***

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# INTRODUCTION

The science, technology, engineering, and math (STEM) fields can play a critical role in driving job creation, higher earning potential, and poverty reduction in Nigeria. The versatile skills acquired by students in STEM fields make them attractive to employers across a variety of sectors. With strong analytical thinking and robust problem-solving abilities, these students often have better employment opportunities and have greater access to well-paying jobs.

Nigeria, Africa's largest economy, is a resource-rich country with a growing industrial and manufacturing base. Nigeria requires a large number of highly skilled professionals to help her diversify her economy and harness her potential in the non-oil sectors, for sustained economic growth and poverty reduction. Students in the STEM fields can become leaders in their chosen fields. There are numerous opportunities available to them and they can select an exciting career path that fulfills their intellectual curiosity, stimulates innovation, and transforms them into problem-solvers in an increasingly complex and competitive economy. For instance, they can undertake research and develop new drugs to treat and cure various illnesses; they can identify novel means to harness Nigeria's vast energy resources to meet the country's growing energy needs, they can design processes and machines to facilitate manufacturing, and can devise innovative solutions to many of life's basic challenges.

The Visiola Foundation's Coding and Robotics Camp is a 7-day residential program designed to pique the interest of girls in the STEM fields. It will train 100 girls over the next 12 months.

In addition to acquiring technical knowledge, students further learn valuable skills in critical thinking, problem solving, and teamwork as they are taught to view the world through the lens of STEM subjects. They will also be mentored and will be provided with the tools with which to succeed in their future careers. Their confidence levels will grow as they realize that they can become innovators who will make a difference in their communities. The aim of the program is to encourage more girls to pursue STEM careers by gaining their interest early and facilitating their success.

The program comprises engaging classroom coursework, practical team activities, fun games, and a group project. Students will learn basic concepts in computer programming, science, math, and engineering. They will additionally put that knowledge into practice by using technology creatively, building web and mobile applications, robots, renewable energy powered devices, and much more. They will be encouraged to develop their own projects, which could be a simple power plant to light up a rural village. At the end of the program, the students will no longer view STEM as boring, but will instead realize that the concepts are interesting, exciting, and are relevant to their daily lives. In addition, the girls will be coached to become better public speakers and to give engaging presentations.

Global research notes that women with mentors, role models, and networks forged from an early age and growing throughout their careers tend to be more successful than their peers.

**The specific goals of the program include:**

- To give girls access to a high quality STEM education and to well-paying jobs and careers.
- To increase girls' understanding of science and technology with a view to encourage them to pursue careers in STEM to help solve Africa's diverse development challenges.
- To increase girls' competency in conducting scientific investigations and critical thinking/reasoning.
- To increase girls' facility and mastery in STEM skills.
- To increase girls' confidence and interest in conducting STEM activities.
- To increase girls' understanding of the multiple applications of STEM in everyday life.
- To increase girls' awareness of STEM careers and interest in pursuing STEM careers.

***"Today's Learner; Tomorrow's Leader."***

# SELECTION CRITERIA

Admission to the Visiola Foundation's Coding and Robotics Camp will be through a competitive selection process that identifies high-potential candidates who will be coached in their life-long pursuits.

Applications will be accepted from eligible candidates from across Nigeria who meet the following criteria:

- Must be Nigerian
- Must be between the ages of 11 and 18
- Must come from a demonstrable underserved community
- Must be available for the full duration of the program

# APPLICATION PROCESS

- Awareness of the program will be made through local community centers, groups, public schools, word-of-mouth, and social media.
- Students will have to complete an application and provide supporting documentation.

**The application package should include the following:**

- ❖ The completed application form
- ❖ A typed 500 word essay explaining the applicant's interest in the program and what she hopes to achieve
- ❖ Explanation of financial background
- ❖ Statement of support from parent or guardian

# SELECTION PROCESS

The selection committee will review all applications and the selected students will be notified of the committee's decision.

# SAFETY AND SECURITY

The Visiola Foundation assigns the utmost importance to the safety and security of all students, staff, and volunteers. Appropriate security measures are in place.

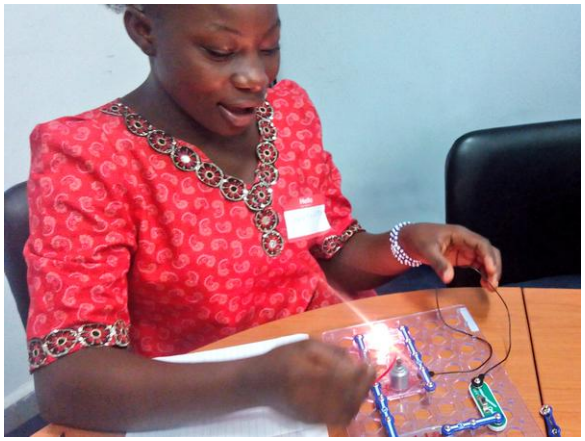
# SAMPLE DAILY SCHEDULE

**The program will run from 9:00 a.m. to 5:00 p.m. daily.**

The following table provides an indicative schedule of activities:

| | |
|---|---|
| 8:00 – 8:35 AM | Breakfast |
| 8:45 - 9:15 AM | Group "Pow Wow" and Daily Challenge |
| 9:20 - 10:30 AM | Introduction to Computer Programming |
| 10:30 - 10:45 AM | Tea Break |
| 10:45 - 12:00 PM | Individual Exercise – Build a basic Homepage |
| 12:05 – 12:50 PM | Lunch |
| 1:00 - 2:00 PM | STEM Mentor Hangout |
| 2:00 – 4:00 PM | Introduction to Robotics |
| 4:00 - 5:00 PM | Group Exercise – Build a Robot |

**Figure 3: Highlights from 2015 STEM Summer Camp**



The students will benefit from a daily "Pow Wow" to motivate and encourage them. Their successes from the previous day will be publicly acknowledged to build the girls' confidence and self-esteem. They will be given a daily challenge to solve a simulated problem in Nigeria, on which they will report the following day. They will also be exposed to successful professionals in the STEM fields who will share their personal experiences and help the girls better visualize the possibility of succeeding in a STEM career.

# OUTCOMES

Out-of-school STEM programs that specifically target girls have proved successful in a number of countries worldwide. By combining formal and informal instruction with challenging activities, these programs often lead to a stronger understanding of STEM concepts, improved academic performance, and a higher interest in pursuing careers in the STEM fields.

Moreover, students will join a growing network and will have the opportunity to further develop their STEM skills and interests through regular meet-ups and through participation in the Foundation's other camps that are designed to empower girls through STEM education, training, and mentoring.

# PROGRAM BUDGET

The budget for the Program is presented in the table below. The budget below covers the cost for 100 students and 10 instructors/facilitators.

**Table 1: Program Budget**

| CATEGORY | COST (US$) |
|---|---|
| Venue | 6,330 |
| Marketing/Communications | 348 |
| Stationary & Workbooks | 822 |
| Project Materials | 2,216 |
| T-Shirts | 1,582 |
| Laptops | 2,532 |
| Meals & Drinks | 8,228 |
| Facilitator Stipend | 632 |
| Transportation | 1,772 |
| Medical/Emergency | 1,266 |
| Security | 1,500 |
| ***Total:*** | ***27,228*** |
| *10% Contingency* | *2,723* |
| **GRAND TOTAL:** | **29,951** |

**Invest in Africa's future scientists, software developers, engineers, and innovators.**

**Empower a talented girl today.**

***The Coding and Robotics Program for Girls creates an environment where risk is rewarded, curiosity is encouraged, and creativity is expected. At the end of the program, the girls will be more confident and better networked. The program will ultimately help to make girls more successful and will inspire them to take on the world's greatest challenges.***