



## SCIENCE INNOVATION AFRICA (SCINOV AFRICA)

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# 1. INTRODUCTION

Science Innovation Africa (**SCINOV AFRICA**) is a registered non-governmental / nonprofit organization (OP.218/051/23-171/13339).

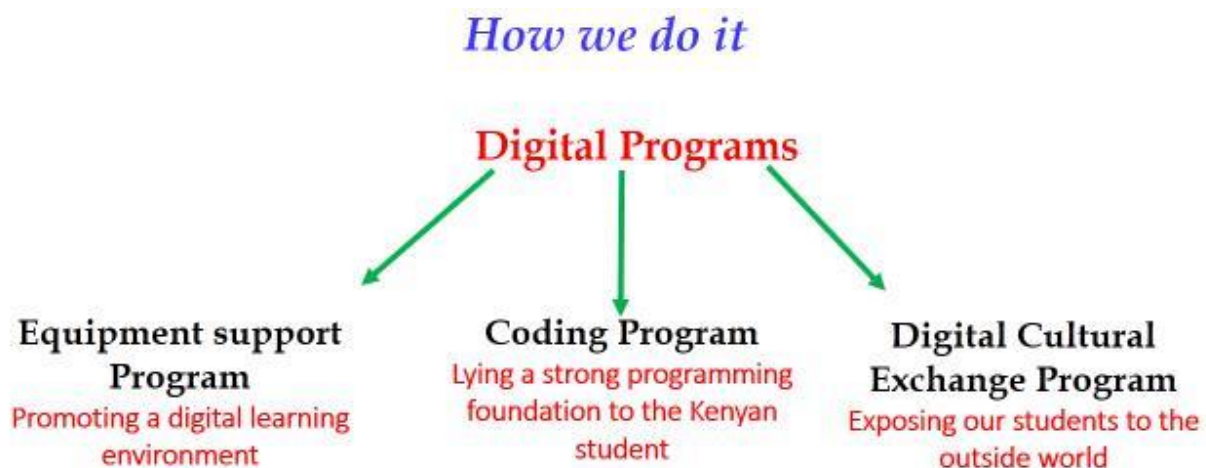
**Mission** - to promote **digital education** among students in elementary, middle and high school grades, hence building a strong foundation for advanced computer skills. Science Innovation Africa is led by 2 Kenyan Directors; Prof. Eddy Owaga and Dr. Joshua Gikonyo.

## 2. Goal

Our main goal is to Partner with learning institutions in creating a well-developed and sustainable environment for digital education

## 3. Primary Objectives

1. Set up sustainable multi-function computer labs for educational institutions. (We donate desktops, laptops, projectors, printers, internet gadgets etc).
2. Promote the concept of Coding through training in schools
3. Transform local schools into "Coding Schools"
4. Enhance ICT integration in teaching through training of teachers
5. Expose students to digital cultural exchange programs



## 4. ICT Equipment Support Program

**AIM** - to promote digital education by creating an enabling environment through provision of ICT facilities.

To achieve this, SCINOV Africa partners with learning institutions and coordinates with various donors outside the country who sponsor us with desktop computers, laptops, printers, projectors and internet gadgets that we in turn supply to our partnering schools.

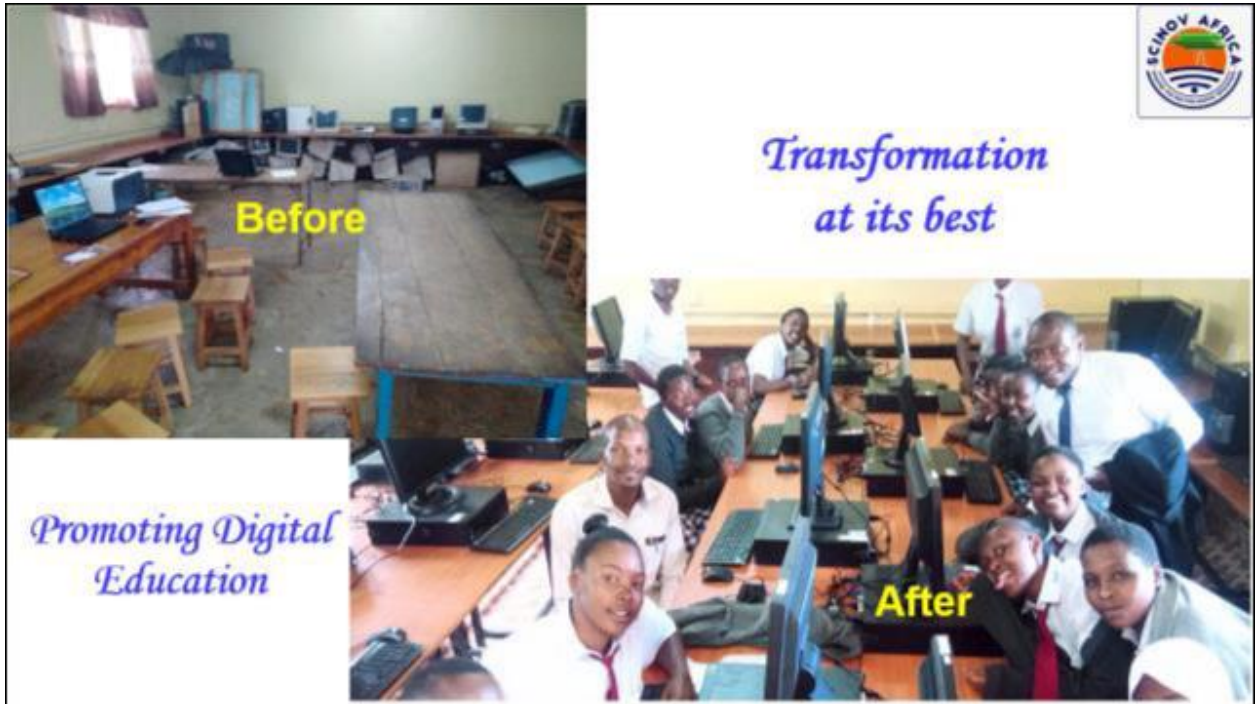
SCINOV Africa first approaches the schools to assess their need status in reference to ICT. Once we identify the schools in need of support, we develop a partnership with the schools geared towards improving their ICT infrastructure and quality of training.

Since the inception of the program, the organization has been able to partner with over **20 schools** in Nyeri County by donating computers to the school's laboratory and other peripherals required to improve the quality of ICT training.

### 4.1. ICT Equipment Beneficially

<b>Year</b>	<b>Beneficially School</b>	<b>No. of Comps Donated</b>
<b>2023</b>	KIRITI SECONDARY	20
	MUTATHIINI SECONDARY	12
	KARIGUINI SECONDARY	12
	MUTHUAINI GIRLS SECONDARY	18
	NYERI BAPTIST SECONDARY	18
	RWARE SECONDARY	15
	CONSOLATA CATHENDRAL INSTITUTE	15
<b>2022</b>	GITITU SECONDARY SCHOOL	20
	MAGUTU GIRLS	22
	WANDUMBI MIXED	15
	WAMAGANA GIRLS	20
	DR. KAMUNDIA GIRLS	15
<b>2021</b>	GACHATHA SECONDARY	26
	KIANDU MIXED	26
	GATHUTHI TVET	28
	ST. CATHERINE MUGUNDA GIRLS	26
	KARATINA GIRLS	26
	KARANGIA SECONDARY	18
	IHITHE SECONDARY	23
	ST. ANNE'S IHITHE RANGES PRIMARY	20

**KARATINA GIRLS - BEFORE AND AFTER**



**ST. CATHERINE OF SIENA MUGUNDA GIRLS - BEFORE AND AFTER**



**KIANDU SECONDARY - BEFORE AND AFTER**



**Before**

**After**

*Transformation at its best*

*Enhancing Digital Education*

The image shows a two-part comparison of a classroom at Kiandu Secondary. The top-left photo, labeled 'Before', shows a classroom with a long wooden desk and a few people. The top-right photo, labeled 'After', shows the same classroom transformed into a computer lab with many desktop computers. A man in a white shirt and red tie is standing in the 'After' photo, pointing at a computer. The text 'Transformation at its best' and 'Enhancing Digital Education' is overlaid on the images. The ECINOV AFRICA logo is in the top right corner.

**GITITU MIXED SECONDARY SCHOOL – BEFORE AND AFTER**



**Before**


**After**

*Transformation at its best*

*Enhancing Digital Education*

The image shows a two-part comparison of a classroom at Gititu Mixed Secondary School. The top-left photo, labeled 'Before', shows a classroom with several desks and computers. The top-right photo, labeled 'After', shows the same classroom transformed into a computer lab with many desktop computers. A man in a grey jacket is standing in the 'After' photo, looking at a computer. The text 'Transformation at its best' and 'Enhancing Digital Education' is overlaid on the images. The ECINOV AFRICA logo is in the top right corner.

# MAGUTU GIRLS SECONDARY – BEFORE AND AFTER




**Before**


*Transformation at its best*

*Enhancing Digital Education*

**After**



**Dr. Kamundia Girls**



**Gathuthi Polytechnic**



**Wandumbi Secondary**



**Gachatha Secondary**



**Wamagana Girls**

## 4.2 Equipment Support Program Outcome

1. Improved performance in computer studies
2. Higher number of enrollment to computer studies
3. Teachers integrate their teaching with ICT
4. Students motivated to advance in digital learning

## 5. Coding Program

SCINOV Africa through Scratch Coding International has been able to partner with Kenyan schools in training **basic programming skills** for the learners. The piloting of this program begun in 2021 and so far SCINOV Africa has partnered with 20 schools within Nyeri County.

**Aim** - to promote and inculcate the culture of programming among partner schools. This eventually enlightens on digital education and creates a career foundation for the learners.

This is achieved by recruitment of schools in groups (cohorts) for a particular training period of **30 hours** spread out over a term/semester. We then train (through coaches) partner schools in basic coding skills using the Scratch Programming Language by MIT (Massachusetts Institute of Technology). So far our success rate is **95%**.

The tables below give a statistically summarized analysis of the performances/results of schools, teachers, students, and coaches/trainers.



## 5.1 Coding Beneficially

Cohort	No. of Schools Trained	No. of students certified	No. of teachers Certified
1	5	94	7
2	5	95	5
3	5	63	14
4	5	128	12
<b>TOTAL</b>	<b>20</b>	<b>380</b>	<b>38</b>

## 5.2 Coding Partnering school

In scratch programming project, SCINOV Africa has partnered with

1. Wamagana Girls
2. Karatina Girls
3. Magutu Girls
4. Gititu Mixed High School
5. Dr.Kamundia Girls
6. Gachatha Mixed Sec School
7. Rware Mixed Sec School
8. Kiriti Mixed High Sec School
9. Nyeri Baptist Sec School
10. Kariguini Mixed Sec School
11. Muthuaini Girls Sec School
12. Gatondo Girls Sec School
13. Mathakwaini Mixed Sec School
14. Gathera Mixed Sec School
15. Wandumbi Mixed Sec School
16. St.Catherine Mugunda Girls
17. Kiandu Mixed Sec School
18. Giakanja Boys High School
19. Kangubiri Girls High School

### 5.3 Coding Reference Materials

Some of the materials provided include:

1. **Scratch Programming Student Guide Textbook** - This is a textbook material that has copyrighted content by SCINOV Africa and approved by KICD (Kenya Institute of Curriculum Development).
2. **Continuity Curriculum Guide** - This is a material content guide with set objectives per lesson with support reference materials such as complete assignments, and projects for both theoretical and practical content.
3. **Google Classroom-** SCINOV Africa has developed content (theory, practicals, and assessments) in Google Classroom that students can easily access and this will help them to self-learn.

### 5.4 Coding symposiums

SCINOV Africa also organizes and conducts annual contests/competitive symposiums where coding trained students compete by solving real-world problems with code such as SDGs training on project pitching and winning awards for their schools. So far, SCINOV Africa has sponsored two successful symposiums in years 2022 and 2023.

In the contest, students compete on different skill sets such as theory examinations, hardware skills, and project implementations using scratch.

**Aim** - Promote Coding education through competition



**Students presenting their coding project in 2023 Coding Symposium**

### 5.5 The benefits of participating in the symposium

1. Student exposure and encouraged positive competition
2. Knowledge exchange
3. Networking with peers and building positive relationships
4. Career development

## 6. Digital Exchange

SCINOV Africa has organized a digital cultural exchange program in which Taiwanese students interact with Kenyan students through video conferencing sessions.

AIM – To provide a platform in which the Kenyan student interact with the outside world on matters education

During the pilot program which happened in year 2023, 6 schools participated. The total number of students from different schools who participated in the program was 90. The students were paired up with Taiwanese students and assigned a facilitator together with the SCINOV Officials.

**The program included exchange in:**

- Coding Exchange, and use of technology as a learning tool.
- Sustainable Development Goals (SDGs)-e.g., quality education
- Cultural Exchange
  - Cuisine
  - Costumes



**Students participating in the digital Cultural Exchange program**

## 7. ICT Integrated Teaching

SCINOV Africa in partnership with the National Taiwan University of Science and Technology, Department of Graduate Institute of Digital Learning & Education, conducts workshops where willing teachers from our partner schools are trained on ICT integrated teaching.

**AIM** - To empower teachers with more ICT Skills

The topics covered include:

- Introduction to ICT integration
- Integrating technology in teaching of sciences
- Using technology in teaching of Arts
- Introducing Teaching Technologies for Mathematics
- Virtual And Augmented Reality for Teaching and Evaluation

The total number of teachers trained so far in Nyeri County is **26**

