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SMA
1/4/26*

REPUBLIC OF KENYA

THE NATIONAL ASSEMBLY

THIRTEENTH PARLIAMENT – FIFTH SESSION – 2026
PUBLIC PETITIONS COMMITTEE

REPORT ON-

CONSIDERATION OF PUBLIC PETITION NO. 19 OF 2025 REGARDING POLICY
AND LEGISLATIVE INTERVENTIONS TO REVERSE THE DECLINE IN UPTAKE
OF SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (STEM)
AND THE NEED TO STRENGTHEN COMPUTER SCIENCE EDUCATION IN THE
COUNTRY



Directorate of Audit Appropriations &
General-Purpose Committees
Clerk's Chambers
Main Parliament Buildings
NAIROBI


 THE NATIONAL ASSEMBLY PAPERS LAID	
DATE: 01 APR 2026	
DAY: <i>Wed</i>	
TABLED BY:	<i>Hon. Muchangi Karemba</i> Chair, Public Petitions
CLERK-AT-TABLE:	<i>Modo Miriam</i>

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ACRONYMS

AI	-	Artificial Intelligence
BBC	-	British Broadcasting Corporation (Microbit platform reference)
CBC	-	Competency Based Curriculum
CBE	-	Competency Based Education
CEMASTEА	-	Centre for Mathematics, Science & Technology Education in Africa
CPD	-	Continuous Professional Development
CSTA	-	Computer Science Teachers Association
ICT	-	Information and Communication Technology
INSET	-	In-Service Education and Training
JICA	-	Japan International Cooperation Agency
KEC	-	Kenya Education Cloud
KEMIS	-	Kenya Education Management Information System
KESSHA	-	Kenya Secondary School Heads Association
KEPSHA	-	Kenya Primary School Heads Association
KICD	-	Kenya Institute of Curriculum Development
KMO	-	Kenya Mathematics Olympiad
KNEC	-	Kenya National Examinations Council
KSEF	-	Kenya Science and Engineering Fair
MOE	-	Ministry of Education
PWPER	-	Presidential Working Party on Education Reform
SMASSE	-	Strengthening of Mathematics & Science in Secondary Education
STEM	-	Science, Technology, Engineering and Mathematics
TSC	-	Teachers Service Commission

CHAIRPERSON'S FOREWORD

On behalf of the Public Petitions Committee and pursuant to the provisions of Standing Order 227, it is my pleasure and honour to present to the House the Report of the Public Petitions Committee on its consideration of Public Petition No. 19 of 2025 regarding policy and legislative interventions to reverse the decline in the uptake of Science, Technology, Engineering and Mathematics (STEM) and the need to strengthen Computer Science education in the country, submitted by the Computer Science Teachers Association of Kenya.

The Petitioners prayed that the National Assembly, through the Public Petitions Committee, engages the Ministry of Education to establish a National Policy and Funding Framework for STEM and Robotics, and directs the Kenya Institute of Curriculum Development (KICD) to incorporate hands-on learning components in Artificial Intelligence (AI), Robotics, Data Science, and Cybersecurity within the national curriculum.

In considering the Petition, the Committee received submissions from the Petitioner and relevant stakeholders including the Kenya Institute of Curriculum Development (KICD) and the Centre for Mathematics, Science and Technology Education in Africa (CEMASTEA). The Committee also reviewed the relevant legal, policy, and institutional framework governing curriculum development and STEM education in Kenya.

The Committee observed that the Government has undertaken several reforms under the Competency-Based Education (CBE) framework aimed at strengthening STEM learning, integrating digital literacy, and equipping learners with skills relevant to emerging technologies. The Committee further noted that computing-related concepts are integrated within Pre-Technical Studies at the Junior School level and offered as Computer Studies within the STEM pathway at the Senior School level, with elements of Artificial Intelligence, Robotics, Data Science, and Cybersecurity progressively incorporated in the curriculum.

While acknowledging the concerns raised by the Petitioners regarding the need to further strengthen computing education and enhance practical learning in emerging technologies, the Committee found that several of the issues raised are already being addressed through ongoing curriculum reforms and teacher capacity development initiatives being implemented by relevant institutions.

The Committee therefore recommends continued strengthening of STEM education through enhanced teacher capacity development, expansion of digital learning infrastructure, and sustained collaboration among education sector stakeholders to support effective implementation of practical STEM learning across the country.

The Committee further recommends that the Ministry of Education and its relevant agencies continue to monitor the implementation of the curriculum and provide the necessary support to ensure that emerging technology concepts are effectively integrated into teaching and learning processes.

The Committee is grateful to the Offices of the Speaker and the Clerk of the National Assembly for the logistical and technical support provided during the consideration of this Petition. The Chairperson also wishes to thank the Members of the Committee and the Secretariat for their dedication and commitment throughout the process.

On behalf of the Public Petitions Committee and pursuant to the provisions of Standing Order 227, it is my privilege to table this Report before the House for consideration.

HON. MUCHANGI KAREMBA, M.P.

CHAIRPERSON, PUBLIC PETITIONS COMMITTEE

PART ONE

1. PREFACE

1.1 Establishment and Mandate of the Committee

1. The Public Petitions Committee was established under the provisions of Standing Order 208A with the following terms of reference:
 - a) considering all public petitions tabled in the House;
 - b) making such recommendations as may be appropriate with respect to the prayers sought in the petitions;
 - c) recommending whether the findings arising from consideration of a petition should be debated; and
 - d) advising the House and reporting on all public petitions committed to it.

1.2 **Committee Membership**

2. The Public Petitions Committee was constituted in October 2022 and comprises the following Members:

Chairperson

Hon. Muchangi Karemba, CBS, M.P.
Runyenjes Constituency

United Democratic Alliance (UDA)

Vice Chairperson

Hon. Janet Jepkemboi Sitienei, M.P.
Turbo Constituency

United Democratic Alliance (UDA)

Hon. Patrick Makau King'ola, M.P.
Mavoko Constituency

**Wiper Democratic Movement-Kenya
(WDM-K)**

Hon. Edith Vethi Nyenze, M.P.
Kitui West Constituency

**Wiper Democratic Movement-Kenya (WDM-
K)**

Hon. Ntwiga Patrick Munene, M.P.
Chuka Igambang'ombe Constituency

United Democratic Alliance (UDA)

Hon. Maisori Marwa Kitayama, M.P.
Kuria East Constituency

United Democratic Alliance (UDA)

Hon. Joshua Chepyegon Kandie, M.P.
Baringo Central Constituency

United Democratic Alliance (UDA)

Hon. Beatrice Kadeveresia Elachi, M.P.
Dagoretti North Constituency

Orange Democratic Movement (ODM)

Hon. Bernard Muriuki Nebart, M.P.
Mbeere South Constituency

Independent

Hon. Biego Paul Kibichy, M.P.
Chesumei

United Democratic Alliance (UDA)

Hon. Peter Irungu Kihungi, M.P.
Kangema Constituency

Maendeleo Chap Chap Party (MCCP)

Hon. John Bwire Okano, M.P.
Taveta Constituency

**Wiper Democratic Movement-Kenya (WDM-
K)**

Hon. Peter Mbogho Shake, M.P.
Mwatate Constituency

Jubilee Party (JP)

Hon. Sloya Clement Logova, M.P.
Sabatia Constituency

United Democratic Alliance (UDA)

Hon. Suzanne Ndunge Kiamba, M.P.
Makueni Constituency

**Wiper Democratic Movement-Kenya
(WDM-K)**

1.3 Committee Secretariat

3. The Public Petitions Committee is facilitated by the following members of the secretariat:

Lead Clerk

Mr. Victor Weke

Principal Clerk Assistant II

Ms. Miriam Modo

First Clerk Assistant

Ms. Kafuyai Wamae

Third Clerk Assistant

Ms. Nancy Akinyi

Research Officer III

Ms. Roselyne Njuki

Principal Serjeant-at-Arms

Mr. Pascal Valerian

Hansard Officer III

Ms. Felistus Muiya

Public Communication Officer

Mr. Benard Toroitich

Third Clerk Assistant

Mr. Clinton Sindiga

Legal Counsel II

Mr. Arkan Mumin

Research Officer III

Mr. Paul Shana

Serjeant-at-Arms

Mr. Collins Mahamba

Audio Officer III

Mr. Calvin Karungo

Media Relations Officer III

PART TWO

2 BACKGROUND TO THE PETITION

2.1 Introduction

4. Public Petition No. 19 of 2025 regarding policy and legislative interventions to reverse the decline in uptake of Science, Technology, Engineering, and Mathematics (STEM) and the need to strengthen computer science education in the country was presented to the House on Thursday, 8th October, 2025 by the Honourable Speaker on behalf of Computer Science Teachers Association of Kenya, a national professional body representing computing educators.
5. The Association is dedicated to ensuring that educators are fully equipped to train the next generation of technology innovators, in alignment with the country's national digital master plan and strategic objectives.
6. The Petitioner highlights a concerning decline in student participation in STEM subjects at a critical time marked by the rapid rise of Artificial Intelligence (AI). Without timely intervention, the nation risks falling behind in global competitiveness, innovation, and its ability to thrive in the Fourth Industrial Revolution.
7. The Petitioner commends the Teachers Service Commission (TSC) for its plan to prioritize STEM subject teachers during the scheduled recruitment of 24,000 intern teachers for junior secondary schools. Further, the Petitioner acknowledges the introduction of coding into the school curriculum in 2022, utilising platforms such as Scratch and Python within the Competency-Based Education (CBE).
8. The Petitioner however raises concerns that dependence on a single introductory tool falls short of preparing students for the complexities of contemporary programming and emerging fields such as AI, Cybersecurity, and Data Science. In addition, the robotics component in the Grade 7-9 curriculum currently lacks substantive hands-on learning opportunities, limiting its effectiveness. The initiative faces significant challenges, including a shortage of trained teachers, inadequate infrastructure, and high resource costs.
9. The petitioner further observed that unlike extracurricular activities such as music, drama, and sports, STEM activities, particularly robotics, the lack of formal financial and policy support, will result in unequal access, especially among marginalized communities. This issue is exacerbated by the Kenya Science and Engineering Fair (KSEF) policy, which mandates the use of proprietary LEGO robotics kits. The high costs of these kits exclude affordable, open-source alternatives like Arduino, Raspberry Pi Pico, and BBC Microbit. This exclusivity fosters elitism, restricts participation, and hinders Kenya's potential to cultivate a locally relevant and scalable robotics culture.
10. These challenges have contributed to a persistent digital divide, limiting the reach and impact of STEM programs, particularly in rural areas.

2.2 Petitioners' Prayer

11. The Petitioners prayed that the National Assembly, through the Public Petitions Committee—
 - (a) Engages the Ministry of Education to establish a National Policy and Funding Framework for STEM and Robotics; and
 - (b) Directs the Kenya Institute of Curriculum Development (KICD) to incorporate hands-on-learning components in Artificial Intelligence (AI), Robotics, Data Science, and Cybersecurity within the curriculum.

PART THREE

3 STAKEHOLDERS' SUBMISSIONS

3.1 The Petitioners

The Petitioner, Mr. Fred Ondieki, appeared before the Committee alongside members of the Computer Science Teachers Association and submitted as follows -

12. There was decline in student participation in STEM (Science, Technology, Engineering, and Mathematics) at a critical time marked by the rapid rise of Artificial Intelligence (AI). He warned that, without timely intervention, the nation risks falling behind in global competitiveness, innovation, and its ability to thrive in the Fourth Industrial Revolution.
13. He nevertheless commended the Teachers Service Commission (TSC) for its plan to prioritize STEM subject teachers during the scheduled recruitment of 24,000 intern teachers for junior secondary schools. Further, the petitioner acknowledged the introduction of coding into the school curriculum in 2022, utilizing platforms such as Scratch programming language and Python programming language within the Competency-Based Education (CBE) framework.
14. However, he raised concerns that reliance on a single introductory tool is insufficient to prepare students for the complexities of contemporary programming and emerging fields such as Artificial Intelligence, Cybersecurity, and Data Science. Additionally, the robotics component in the Grade 7-9 curriculum currently lacks substantive hands-on learning opportunities, which limits its effectiveness. The initiative also faces significant challenges, including a shortage of trained teachers, inadequate infrastructure, and high resource costs.
15. The petitioner further observed that, unlike extracurricular activities such as music, drama, and sports, STEM activities particularly robotics lack formal financial and policy support, which could result in unequal access, especially among marginalized communities. He added that this issue is exacerbated by the policy governing the Kenya Science and Engineering Fair (KSEF), which mandates the use of proprietary LEGO robotics kits. The high cost of these kits excludes more affordable, open-source alternatives such as Arduino micro-controller platform, Raspberry Pi Pico, and BBC microbit. According to the petitioner, this exclusivity fosters elitism, restricts participation, and undermines Kenya's potential to cultivate a locally relevant and scalable robotics culture.
16. He stated that these challenges have contributed to a persistent digital divide, limiting the reach and impact of STEM programs, particularly in rural areas.

3.2 Kenya Institute of Curriculum Development

The Chief Executive Officer, Kenya Institute of Curriculum Development, Prof. Charles Ong'ondo, PhD, MBS, vide a letter Ref: KICD/CON/M/1/6/VOL. III/59 dated 26th November, 2025, submitted as follows -

17. The Kenya Institute of Curriculum Development (KICD) was established by the Government of Kenya on the 14th January 2013 under an Act of Parliament to develop, review and approve curricula, programmes and curriculum support materials for basic and tertiary education, as well as offering curriculum-based consultancy services in basic and tertiary education and training.
18. The institute has spearheaded curriculum reforms in the country since the introduction of the Competency Based Curriculum (CBC) in 2016. As per the Basic Education Curriculum Framework, Junior School (JS) is a distinct level of education with a broad-based curriculum that is intended to prepare learners for the three pathways at Senior School Education. It is at this level that the learner is expected to identify and nurture their potential and interest in preparation for the different career choices. The phase of learning between Primary and Senior Secondary targets learners in the age bracket of 12 to 14 years.
19. Following the recommendations by the Presidential Working Party on Education Reform (PWPER 2023), KICD has rationalized the number of learning areas and curriculum designs in terms of scope, integration of subjects, learning areas, gaps content overload and overlaps in Basic Education.
20. The petitioners' assertion that the Competency Based Curriculum began integrating computational thinking and coding concepts in 2022 is correct however, the curriculum does not limit the use of Scratch to lower grades or Python to upper grades as alleged. Instead, these tools are presented as suggested learning resources intended to support teachers rather than prescribe specific software or programming languages. Visual programming was introduced for Grade 8 learners in 2024 and extended to Grade 9 in 2025. during this period, applications such as Scratch were used as examples of platforms that help learners grasp programming logic through block-based activities.
21. The petitioner highlights the urgent need for strong computer science foundations to equip learners for a rapidly evolving digital landscape shaped by artificial intelligence, robotics, cyberspace and data science. These priorities align closely with the direction already taken in the current curriculum in Computer Studies Grade 12 as indicated in the table below -

Strands	Sub-Strands
1.0 Foundation of Computer Science	1.7 Emerging Technologies 2.7 Artificial Intelligence (AI) Concepts 3.7 Artificial Intelligence (AI) Implications & Ethics 4.7 Robotics 5.7 Data Analysis and Visualization 6.7 Career Opportunities 7.7 Professional Ethics and Legal Issues in Computing
2.0 Computer Networking	1.4 Network Troubleshooting 2.4 Cybersecurity 3.4 Cloud Computing 4.4 Social and Ethical Issues in Networking
3.0 Software Development	1.4 Data Structure (Arrays, Stack and Queues) 2.4 Web Development II

	Software Development Life Cycle (SDLC) Software Project Management
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Table 1: Extract of Grade 12 Curriculum Design

22. Pioneer Grade 12 will be in 2028 and the areas alleged not to be in curriculum are covered. It is therefore premature to make a judgement on how the curriculum will not help the learner develop AI, Robotics and cybersecurity competences.
23. The Petitioner referred to a subject known as Computer Science, which does not currently exist in the curriculum and may instead be referring to the curriculum reviewed in 2023 during the rationalization process following the recommendations of the Presidential Working Party on Education Reforms (PWPER), 2023. The subject currently offered is Computer Science Studies, which incorporates practical, hands-on skills across various concepts within the curriculum design, rather than focusing solely on robotics. The table below outlines some of the suggested hands-on learning activities that learners are expected to undertake when studying robotics at Grade 12.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences
1.0 Foundations of Computer Studies	1.4. Robotics	By the end of the sub-strand, the learner should be able to; <ul style="list-style-type: none"> ✓ explain characteristics of a robot, ✓ Describe the compound of a robot, ✓ Assemble the components to make a prototype robot, ✓ Program the prototype robot to make it functional, ✓ Use the prototype robot to perform a task, ✓ Appreciate the importance of robots in society. 	The learner is guided to- <ul style="list-style-type: none"> ✓ Use print or digital resources to search for characteristics of a robot and present to peers; ✓ Relate components of as robot to their functions, ✓ Discuss types of robots and the application areas; ✓ Assemble and program tasks, ✓ Discuss the impact of using robots in the society; ✓ Participate in robotics boot camps, competitions, clubs, societies or workshops to showcase prototype robots built.

Table 2: Suggested hands-on learning activities on Robotics

24. He further clarified that the petitioners' assertion that Computer Science was offered as a stand-alone subject in Grade 7-9 was untrue as there is no stand-alone subject called

Computer Studies at Junior School Grade 7-9, following the rationalization of the curriculum in 2023.

25. The correct position is that Computer Science is not offered as a standalone subject in Grades 7 to 9. Instead, computer-related concepts are embedded within the Pre-Technical Studies subject, in line with the PWPER 2023 recommendations. This introduces learners to foundational computing ideas, including elements of visual programming, without prescribing any specific programming language. Robotics may appear as a suggested learning experience but is not outlined as a distinct learning outcome, allowing flexibility for schools with different resource levels. The curriculum provides suggested learning experiences that teachers may adapt or supplement, and these activities are intentionally hands-on strengthen problem-solving and design skills across disciplines.
26. At Senior School, the Grade 10-12, curriculum is offered as Computer Studies, focusing on both foundational and advanced modern technology concepts. It retains some legacy content for continuity while integrating contemporary areas such as emerging technologies, networking, and programming beyond introductory levels, ensuring learners develop relevant digital competencies for today's world.
27. The Committee was informed that the Petition raised concerns regarding public participation in the development of the Senior School curriculum, including the Computer Science component. However, the Kenya Institute of Curriculum Development indicated that it followed the established legal and procedural requirements for curriculum review.
28. As part of the implementation of the Competency-Based Education framework, KICD invited applications from teachers, teacher educators, and other relevant professionals to serve on curriculum panels. This is the standard mechanism through which subject matter experts, practitioners, and other stakeholders are engaged in the development and review of curriculum designs and support materials. The call for panelists was publicly communicated through official platforms to ensure transparency and broad participation.
29. Additionally, public participation in curriculum development is not limited to the selection of panelists. Broader public engagement is undertaken through structured stakeholder forums, submission of written memoranda, monitoring of curriculum implementation, and consultations with education sector partners. These processes were undertaken during the review of the Senior School curriculum, and feedback obtained through these channels informed revisions to the curriculum designs, including those relating to Computer Studies.
30. On whether the KICD undertakes consultations on curriculum review with other stakeholders including parents teachers, and publishers. Typically, the Kenyan government through the MOE and KICD invoices various stakeholders, including parents, teachers, publishers, religious organizations, and industry and education experts, in the process of curriculum review and development. This inclusive approach ensures that the curriculum reflects the needs and perspectives of diverse groups and aligns with the country's educational goals. Here is how the government and KICD undertakes consultations with these stakeholders -

a) Needs Assessment

Needs assessment is the first step in curriculum development. It involves determining the societal needs to be addressed by education programs. In the context of curriculum development in Kenya, various stakeholders play important roles in the needs assessment process. These stakeholders represent different sectors within the education system and the broader community. Here are some key stakeholders involved in needs assessment for curriculum development in Kenya:

- i. *Teachers and Educators*: Teachers and educators are crucial stakeholders in curriculum development. Their insights into the needs and challenges faced in the classroom are invaluable for identifying areas that require attention in curriculum design and implementation. They provide insights into the designs, implementation, and assessment of education program. Teachers of Computer Studies were engaged in proving their insights into the curriculum developed as they were respondents during needs assessment for curriculum reform.
- ii. *School Administrators*: Principals, head teachers, and other school administrators provide perspectives on the operational aspects of curriculum delivery within schools. Their input helps ensure that curriculum development efforts are practical and feasible at the school level.
- iii. *Parents and Guardians*: Parents and guardians are key stakeholders as primary partners in the education of their children. Their input in needs assessment activities helps ensure that the curriculum aligns with societal values, parental expectations, and the needs of learners.
- iv. *Community Representatives*: Community leaders, local organizations, and NGOs represent the broader community interests and priorities. Their involvement in needs assessment efforts ensures that curriculum reflects the cultural, social, and economic contexts of different communities across Kenya.
- v. *Publishers*: provide critical information related to the quality of instructional materials for curriculum implementation.

Engaging these diverse stakeholders in needs assessment processes ensures that curriculum development efforts in Kenya are informed by multiple perspectives and reflect the needs and aspirations of various stakeholders within the education system and society at large

b) Stakeholder Meetings and Workshops

The government through MOE, KICD, and KNEC organizes meetings, workshops, and focus groups discussions with parents, teachers, publishers, and other relevant stakeholders to gather input on curriculum review. These sessions provide opportunities for stakeholders to share their experiences, concerns, and suggestions for improving the curriculum. Over the years, several stakeholder meetings have been held. Some of the stakeholders include Parliamentary and Senate Committees on Education, Religious Organizations, Professional organizations like KEPSHA, KPSA, KESSHA, Trade unions, Universities, Private sector, Civil society etc.

c) Monitoring and evaluation:

The government through MOE, KICD, and KNEC conducts annual monitoring of the implementation of CBC. Surveys, questionnaires, and Focus Group Discussion (FGC) gather feedback from parents, teachers, and publishers on various aspects of the curriculum. This data helps identify areas for improvement and informs the curriculum development process. During these monitoring activities the petitioner has room to provide feedback on the curriculum that will be considered during review.

d) Public Consultation Forums:

The government and KICD organizes public consultation forums where stakeholders can openly discuss proposed changes to the curriculum. These forums encourage transparency and accountability in the curriculum review process and allow for meaningful engagement with the broader community.

e) Feedback Mechanisms:

The government and KICD has established feedback mechanisms, such as online portals or dedicated hotlines, where stakeholders can submit their comments, suggestions, and concerns regarding the curriculum. This ensures that stakeholders have avenues to participate in the review process, even if they cannot attend meetings or workshops in person.

31. The Kenya Institute of Curriculum Development (KICD) submitted that stakeholder involvement in curriculum review remained essential for building consensus, addressing concerns, and ensuring responsiveness to learner and community needs. The Institute emphasized that collaborative dialogue enabled the government to develop relevant, inclusive, and effective curriculum frameworks.
32. Regarding the Senior School curriculum scheduled for 2026 implementation, KICD noted that the framework comprised ten subjects, including four compulsory subjects Mathematics, English, Kiswahili, and Community Service Learning alongside non-assessed subjects such as Physical Education, ICT Skills, and religious instruction, all designed to support holistic learner development.
33. The Institute clarified that emerging technologies had not been overlooked in the curriculum development process as alleged. Artificial intelligence and robotics, it submitted, were progressively addressed within the STEM pathway, with Computer Studies offered as a distinct subject separate from ICT Skills. The curriculum incorporated foundational computing concepts including programming, data systems, digital literacy, and technology ethics, informed by global trends and international benchmarks. KICD suggested that the petitioner may not have accessed the curriculum designs prior to making the allegations.
34. On the petitioner's claim that Computer Studies was offered in Grades 7–9, KICD responded that no such standalone subject existed at that level. Following 2023 curriculum rationalization, computing and ICT concepts had been embedded within Pre-Technical Studies, without explicit robotics learning outcomes as alleged. The Institute confirmed that correspondence referenced in the petition had been received and responded to on 23rd March 2025.

35. In response to the prayer regarding continued strengthening of Kenya's computing education, the Kenya Institute of Curriculum Development (KICD) recognizes the significance of a modern and industry-aligned Computer Studies curriculum and has already put in place mechanisms that address many of the concerns. KICD continues to engage a diverse range of stakeholders during curriculum review, development and implementation, including teachers across the country, industry professionals, teacher educators, and university subject experts. On learning materials, KICD is advancing a blended approach that includes both print and digital formats. Kenya Education Cloud (KEC) is a digital content platform already in use across basic education and it provides opportunities for flexible updates and integration of global digital tools.
36. In response to Prayer that the Kenya Institute of Curriculum Development (KICD) appreciates the interest in ensuring that emerging technologies like Artificial Intelligence (AI), Robotics, Cybersecurity, and Data Science are effectively integrated into the Basic Education curriculum, in alignment with the Kenya National AI Strategy 2025-2030, the institute clarified that the current curriculum integrates these concepts progressively, based on the learner's developmental level, age, and cognitive readiness. At the Junior School level (Grades 7-9), foundational digital literacy and computational thinking are introduced within Pre-Technical Studies. While AI, Robotics, and Data Science are not standalone subjects at this stage, prerequisite skills like problem-solving, visual programming, and digital tool proficiency are embedded to prepare learners for more advanced concepts. At the Senior School level, the ICT and Computer Studies curriculum incorporate elements of AI, Robotics, Cybersecurity, and Data Science. These concepts are covered at a level appropriate for this pre-career stage, equipping learners with practical and theoretical foundations for 21st-century digital competencies. For example;
 - a) Computer Studies: Includes strands from Grades 10 to 12, with sub-strands in Grade 12 on Cybersecurity, Emerging Technologies, Artificial Intelligence, Robotics, and Data Analysis and Visualization.
 - b) ICT: The strand in Grade 12 covers Digital Citizenship, including cybersecurity under cyber threats, as well as Emerging Trends in ICT, Artificial Intelligence, and basics in Robotics, Data analysis and visualization under strand called productivity tools sub strand spreadsheets in Grade 11.
37. KICD Basic education curriculum framework, Computer Studies is a subject at senior school categorized under the STEM pathway. ICT is offered as a support subject in senior schools.
38. The Institute further adheres to the international standards, supported by UNESCO-IBE, to review the curriculum every five years and will commence this process when the current education cycle ends in 2028.
39. In conclusion, KICD acknowledges the concerns raised by the Computer Studies Teachers Association (CSTA) regarding the strengthening of STEM and Computer Science education. The Institute is committed to developing a robust, relevant, and dynamic curriculum that equips learners with 21st century skills, including digital literacy and computational thinking. However, upon careful review of the petition, KICD finds that the

issues pertaining to the curriculum are based on several fundamental misapprehensions and are, therefore, not merited.

40. The institute proposed that the petition be dismissed on the following grounds -

- a) *The Petition was based on an Outdated Curriculum Framework:* The curriculum concerns raised by the petitioner are anchored in a curriculum structure that had since been comprehensively reviewed and rationalized. The current Competency-Based Curriculum (CBC), including the pathways for Senior School, was finalized and approved in 2023 following Rationalization as recommended by the PWPER. The rationalization exercise meticulously integrated stakeholder feedback, including inputs from subject specialists and teachers, to address the gaps the petition alludes to. Therefore, the issues raised are addressed in the curriculum currently being implemented.
- b) *The Curriculum Review Process was Inclusive of Practitioners:* The petitioners narrative assumes a lack of involvement of computer teachers in the development process. This is incorrect. The KICD curriculum development process is highly participatory. The technical teams that developed the Computer Studies curriculum were predominantly composed of practicing teachers of Computer Studies, among other experts.
- c) *Curriculum Development Cannot Be Ceded to a Single Interest Group:* While KICD values the input of stakeholder associations like the CSTA, the mandate for national curriculum development rests solely with KICD, as per the KICD Act No. 4 of 2013. Allowing any single interest group to dictate curriculum content would amount to a conflict of interest and undermine the national, inclusive, and balanced approach required for curriculum design as per the international standards. KICD's process ensures that the curriculum serves the broader national interest, not the proprietary interests of any single organization.
- d) *The Proposed Pathway Overhaul is Impractical and Prohibitively Costly:* The petitioner's proposal to establish Computer Science as a distinct pathway, separate from the STEM pathway, is not a simple adjustment but a fundamental overhaul of the Senior School Curriculum. Implementing such a change at this advanced stage would necessitate massive re-investment in re-writing curriculum designs, retraining teachers, re-developing learning materials, and re-configuring school infrastructure. This would be an unjustifiably expensive and logistically disruptive undertaking for the taxpayer, with no guaranteed educational benefit over the current integrated STEM approach.
- e) *The Petition Prejudges a Curriculum Yet to Be Implemented:* The new Senior School curriculum, which incorporates Computer Studies within the STEM pathway, is scheduled for implementation in the coming academic year 2026 at Grade 10. It is premature and speculative for the petitioner to declare that this curriculum would not produce the right person before it has even been operationalized. KICD holds that the curriculum should be given an opportunity to be implemented, monitored, and evaluated based on empirical evidence from the field, not preconceived notions.

3.3 Centre for Mathematics, Science and Technology Education in Africa (CEMASTEА)

The Chief Executive Officer, CEMASTEА, Ms. Jacinta I. Akatsa, HSC, vide written submissions dated 24th November, 2025, submitted as follows -

41. CEMASTEА traces its establishment to the Strengthening Mathematics and Science in Secondary Education (SMASSE) Project. SMASSE started in 1998 as a pilot project jointly implemented by the Ministry of Education and the Japan International Cooperation Agency (JICA). The projects' purpose was to improve classroom practices of mathematics and science teachers, while the overall goal was to upgrade the capabilities of young Kenyans in mathematics and science.
42. In 2005, Sessional Paper No. 1: A Policy Framework for Education, Training, and Research authorized the establishment of CEMASTEА as a fully-fledged institution for in-service education and training (INSET) for Science, Technology and Mathematics teachers. Consequently, CEMASTEА programmes were captured in the Kenya Education Sector Support Programme (KESSP, 2005-2010) as Investment Programme No. 17.
43. CEMASTEА was established as a body corporate under Legal Notice No. 96 of 2006. In exercise of the powers conferred by section 10 of the Education Act (Cap 211) now repealed by the Basic Education Act 2013.
44. CEMASTEА's core mandate is to develop capacity in STEM education through training of curriculum implementers and research, conduct continuous Professional Development (CPD) programmes for curriculum implementers, develop and disseminate innovative teaching and learning materials in STEM subjects, promote the use of Information and Communication Technology in education and serve as a regional centre of excellence in mathematics and science education.
45. The assertion that Kenya is experiencing low student enrollment as in STEM as a result of inadequate facilities, gender disparities, and an overly theoretical curriculum does not reflect current national data nor the reforms being implemented under the Competency Based Education (CBE) as stipulated below:
46. The Basic Education Curriculum Framework (BECF, 2017) envisioned that at least 60% of senior school learners would pursue the STEM pathway. This informed national planning, including the design of the senior school structure and the implementation of the pathway-based progression. According to data from the Kenya Education Management Information System (KEMIS), 50.5% of learners transiting to senior school in 2026 have opted for the STEM pathway. These numbers are expected to rise in the subsequent years as interventions continue to be implemented by relevant players. This should demonstrate a steady rise in learner interest and participation in STEM-related subjects.
47. According to the KPSEA 2023 Report, 90.59% of Grade 6 learners in Mathematics and 77% in Science and Technology achieved performance levels ranging from Approaching Expectations to Exceeding Expectations. This strong performance indicates that learners are already demonstrating positive dispositions toward STEM which are reflected in their

ability to meet or closely approach expected competency levels. The trend remained consistent in 2024, where 77.6% of learners in Mathematics and 77% in Science similarly demonstrated acquisition or near acquisition of the expected competencies. This continuity across years suggests that learner motivation and positive attitudes toward STEM subjects are stable and are translating into sustained performance.

48. These improvements in STEM subjects, alongside gains in other subjects, point to a broader pattern of strengthened learner engagement and motivation. Collectively, these correlations suggest that Kenyan learners are developing and sustaining positive attitudes toward STEM disciplines, with their year-on-year performance directly affirming their growing participation and engagement.
49. On the issue stating that the curriculum remains overly theoretical is inconsistent with the ongoing shift to CBE, the CEO stated that CBE focuses on what learners can do rather than what they merely know. CBE centres on the practical demonstration of skills, attitudes, and knowledge in real-life contexts. Its learning outcomes are action-oriented, requiring learners to apply concepts through tasks, projects, problem-solving activities, and performance-based assessments. The curriculum deliberately integrates authentic learning experiences, such as project-based learning, inquiry, experiments, community engagement, and the use of locally available materials to anchor learning in real situations. Assessment in CBE is also practical, emphasizing continuous observation, portfolios, demonstrations, and real-world tasks rather than written tests alone.
50. Under the Senior School framework, all learners are required to pursue one of three pathways: STEM, Social Sciences, or Arts and Sports Science, each grounded in practical, project-based, and problem-solving pedagogies. Mathematics has also been presented as either Core Mathematics (STEM pathway) or Essential Mathematics (Social Sciences and Arts pathways), ensuring universal numeracy and enhancing the relevance of STEM across pathways.
51. With regard to gender disparities, national examination data reflect near gender parity in overall candidature, with a few gaps now arising primarily in subject selection. To address this, the Government and partners such as KNATCOM-UNESCO have instituted deliberate interventions, including Girls' STEM-ICT Camps of Excellence and gender-responsive teacher mentorship initiatives aimed at dismantling stereotypes and supporting retention of girls in STEM.
52. CEMASTEAs Programmes that promote STEM: CEMASTEAs, pursuant to its mandate, undertakes structured interventions that directly respond to the concerns raised. These interventions focus on up-skilling, and continuous capacity development of curriculum implementers, and implements programs that inspire learners in STEM education. CEMASTEAs thereby strengthens the quality, practicality, and attractiveness of STEM education as follows:
 - a) Retooling and Continuous Capacity Development of curriculum implementers**
 - i. To ensure the realization of Government policy of 60% transition to the STEM pathway, CEMASTEAs conducts capacity building programmes that targets an annual average of

25,000 curriculum implementers to enhance their pedagogical content knowledge. Specifically, the training covers interpretation of curriculum designs, inquiry-based STEM pedagogy, ICT integration in the learning process, assessment, and how to develop and source for teaching learning resources. These trainings are aligned with the CBE framework and are aimed at improving classroom practice, making STEM practical and engaging for learners.

- ii. CEMASTEА conducts workshops to support pedagogical leaders (school principals and heads of institutions) to create awareness of their schools' potential to offer a STEM pathway under the CBE system. In April and June 2025 CEMASTEА trained 9,362 Senior School Principals on the transition to the STEM Pathway under CBE. This initiative together with nation-wide STEM outreach activities has contributed to expanding the number of students/learners taking the STEM pathway under the CBE system.
- iii. Virtual Laboratories: Technology presents teachers with unique opportunities to enhance the teaching and learning of STEM. By integrating innovative tools such as virtual laboratories, teachers can foster a more engaging, interactive, and effective learning environment. CEMASTEА with support from the World Bank has developed virtual laboratory platforms and trained 9,230 junior school teachers on how to use virtual labs in the classroom. This platform also enables learners to conduct simulations and interactive experiments. These tools mimic real-world scientific environments and ensure that practical STEM learning can occur even where physical infrastructure is limited.

b) CEMASTEА STEM Programme Initiatives

CEMASTEА runs targeted learner-facing initiatives such as; the STEM Model school programme, STEM outreach programmes, holiday boot camps on robotics, coding, AI, 3D modelling and printing, Girls' STEM mentorship activities, and the Kenya Mathematics Olympiad. These initiatives are designed to make STEM visible, exciting, and relatable to learners, thereby boosting enrolment and addressing gender disparities.

- i. STEM Outreach Programmes: CEMASTEА conducts nationwide STEM outreach activities in schools aimed at creating awareness of the broad opportunities available within STEM fields. These outreach programmes include exhibitions, demonstrations, and motivational talks that expose learners to practical STEM applications and help cultivate early interest in STEM.
- ii. Holiday STEM Boot Camps: The Centre organizes STEM boot camps during school holidays, offering learners hands-on exposure to robotics, coding (including Python and C++), 3D modelling and printing, engineering design, and creative problem-solving. These camps provide an immersive learning environment that nurtures curiosity, innovation, and practical skills beyond the formal classroom setting. Further, it provides opportunities for parental involvement and engagement.
- iii. Kenya Mathematics Olympiad (KMO): A purposeful and highly structured mathematics enrichment initiative aimed at fostering a positive mathematics culture in schools. The Olympiad challenges learners to engage in advanced problem-solving,

stimulates mathematical curiosity, and identifies high-potential talent. Successful participants benefit from incentives such as opportunities to represent Kenya in international mathematics competitions, access to scholarship pathways, and enhanced prospects for competitive university placements in STEM- related programmes.

- iv. School Visits to CEMASTEIA: Schools across the country visit CEMASTEIA, where learners interact with specialized STEM facilities, virtual laboratories, robotic equipment, and innovation spaces. These visits enable students to experience real-world STEM environments and expand their understanding of STEM careers and technologies.
 - v. Girls' STEM Clubs and Mentorship Programmes: To address gender disparities in STEM, CEMASTEIA is working on a framework for Girls' STEM Clubs and targeted mentorship programmes that build confidence, dismantle stereotypes, and provide role models for female learners. These initiatives are designed to promote equitable participation and ensure that girls are supported to pursue and excel in STEM pathways and careers.
 - vi. The STEM Model Schools Programme: CEMASTEIA is working with selected 103 schools spread across all the 47 counties to model STEM education. Each county has at least two STEM Models. Others are distributed across all the eight regions. Teachers and Principals of these schools are trained on the integrated approach to STEM education and principles and practice of inviting school climate. The schools also receive specialized STEM equipment.
 - vii. The Senior School under CBE will receive its first cohort of learners transiting from Junior School in 2026. According to data referenced from the Kenya Education Management Information System (KEMIS), the learners' interest in the different pathways is distributed as follows: Arts and Sports Science - 121,080 learners; Social Sciences - 437,657 learners; and STEM - 569,967 learners (translating to 50.5%), out of a total of 1,127,704 learners. These numbers are encouraging and demonstrate a sustainable level of interest in the STEM pathway and therefore negates the assertions by the petitioner that there is low student enrolment in STEM subjects. Given that this is the inaugural cohort, the Centre cautions that any conclusion by the petitioner suggesting a decline in STEM enrolment is unsubstantiated by empirical evidence. On the contrary, the magnitude of the uptake recorded in this first year provides a strong foundation for exponential growth in subsequent cohorts as the pathway system stabilizes and associated reforms continue to mature.
53. On the issue regarding the need for structured professional development for teachers on modern computing and AI pedagogical skills as referenced in the petition, CEMASTEIA wishes to bring to the committees' attention what it is doing on the challenges cited by the petitioner on equipping teachers with modern computing and AI pedagogical skills. Further, CEMASTEIA partnered with Raspberry Pi, Microsoft, and Intel to train its staff on AI in education, computing and code clubs. Through these partnerships the Centre developed a training module and continues to capacity build curriculum implementers on AI in education, computing and code clubs to strengthen STEM pedagogies and enhance their capacity in emerging technologies. This initiative ensures alignment with CBE and

supports the integration of digital literacy, innovation, and future skills across all learning areas.

54. Regarding Exclusive use of proprietary Robotics Kits during the Kenya Science Engineering Fair (KSEF) as referenced in Material Concern No. 39-45 of the petition, the CEO clarified that the assertion that CEMASTEA together with the Ministry of Education and other stakeholders from KSEF dictate or exclusively prescribe the use of proprietary LEGO robotics systems (i.e Mindstorms and LEGO Education SPIKE) in the robotics category, to the exclusion of more affordable or open-source alternatives, was factually inaccurate and not supported by any evidence.
55. KSEF is an annual school event organized by the Ministry of Education in collaboration with other stakeholders. This event runs from the sub-county level to the National level and is open to all schools providing an equal opportunity for students to participate. There are currently 13 categories in STEM disciplines in which the students compete. Robotics was one of the categories. The introduction of the robotics category by KESF in 2019 which followed a successful countrywide robotics challenge organized by CEMASTEA in 2018 among the STEM Model Schools. The aim was to promote creativity, innovation and problem solving through hands-on learning among learners. CEMASTEA also successfully advocated for the integration of robotics as the 13th Competitive Category in the Kenya Science and Engineering Fair (KSEF).
56. CEMASTEA's role in the Kenya Science and Engineering Fair (KSEF) is to provide ongoing technical support to KSEF through provision of qualified judges. The Centre does not prescribe, compel, or otherwise direct participating schools on the specific robotics kits they must procure or utilize. Kit selection remains solely within the discretion and financial capability of individual schools.
57. CEMASTEA's previous engagement with LEGO kits arose from a partnership initiative at the inception of the robotics competition. Under this initiative, LEGO partnered with CEMASTEA, and trained its staff on robotics education, who in turn cascaded the training to teachers in STEM model schools.
58. CEMASTEA donated LEGO kits to STEM model schools to introduce robotics education. This donation was neither accompanied by any obligation on the part of the schools to continue using LEGO kits nor intended to restrict them from procuring other alternative kits.
59. Regarding the assertion of vendor exclusivity in robotics competitions, CEMASTEA wishes to state categorically that KSEF defines competition rules which are standardized based on sound scientific principles, technology-agnostic and non-discriminatory. The evaluation criteria focus on problem solving capabilities, innovation and programming efficiencies.
60. The Centre further wishes to humbly submit that all schools, whether STEM model schools or otherwise, retain full liberty to acquire robotics kits that are suitable and affordable to them. KSEF regulations do not restrict any robotics kits in the competition, and no school is in any way disadvantaged for opting for non-LEGO or open-source alternatives.

61. It is therefore important to bring to the Committee's attention that CEMASTEА's mandate within the KSEF framework pertains to judging and quality assurance of the competition process. The procurement of robotics equipment lies squarely within the purview of individual schools and is not a function exercised by the Centre.
62. In conclusion CEMASTEА hopes that it has adequately responded to the material concerns raised that specifically regard its mandate. CEMASTEА remains steadfast in its commitment to continuously enhance teacher professional development including emerging technologies e.g. Robotics, AI, Coding, strengthening strategic partnerships with industry, academia, and development partners and supporting the Government's digital transformation agenda as outlined in Vision 2030 and the Digital Economy Blueprint.

PART FOUR

4. COMMITTEE OBSERVATIONS

63. Upon hearing from the Petitioner and other stakeholders, the Committee observed that—
- (i) Petitioner's concerns regarding the strengthening of STEM education and enhancement of computing skills, aligned with national objectives of promoting digital transformation and innovation.
 - (ii) The Competency-Based Education framework had introduced significant reforms integrating digital literacy, computational thinking, and emerging technologies. Computer-related concepts were embedded within Pre-Technical Studies at Junior School level. Computer Studies was offered as a distinct STEM pathway subject at Senior School level.
 - (iii) On Curriculum content and timing, the Committee noted stakeholder evidence indicating that Artificial Intelligence, Robotics, and Data Science concepts were progressively incorporated at appropriate learning levels. However, misinterpretations about the current curriculum framework persisted.
 - (iv) On Learner Uptake and Programmes, CEMASTEAs data demonstrated significant learner interest. Approximately 50.5% of transitioning students had selected the STEM pathway attributed to ongoing CEMASTEAs initiatives like teacher training programmes, STEM outreach activities, virtual laboratories, learner-focused boot camps, and mentorship programmes.
 - (v) Notwithstanding ongoing reforms, the Committee recognized persistent challenges which included disparities in access to learning resources, teacher capacity gaps in emerging technologies and infrastructure constraints in under-served regions.
 - (vi) Sustained policy support, investment in teacher capacity development, and expanded access to digital learning resources will be necessary to sustain and strengthen the uptake of STEM education nationwide.

PART FIVE

5. COMMITTEE RECOMMENDATIONS

Pursuant to the provisions of Standing Order 227, the Committee responds to the petitioners as follows -

- (i) On the prayer that the Committee engages the Ministry of Education to establish a National Policy and Funding Framework for STEM and Robotics; **the Committee notes that the Government has undertaken significant reforms under the Competency-Based Education framework aimed at strengthening STEM education. However, to enhance these efforts, the Committee recommends that the Ministry of Education (MoE), in collaboration with the National Treasury, Kenya Institute of Curriculum Development (KICD), and the Centre for Mathematics, Science and Technology Education in Africa (CEMASTEА), should strengthen policy coordination and resource allocation towards the expansion of STEM education programmes, including investment in infrastructure, digital learning resources, and teacher capacity development, particularly in underserved and marginalized areas.**

- (ii) On the prayer that the National Assembly directs the Kenya Institute of Curriculum Development (KICD) to incorporate hands-on learning components in Artificial Intelligence (AI), Robotics, Data Science, and Cybersecurity within the curriculum; **the Committee notes the submissions by the Kenya Institute of Curriculum Development (KICD) that emerging technology concepts are progressively integrated within the existing curriculum. The Committee therefore recommends that the Kenya Institute of Curriculum Development (KICD), in collaboration with the Ministry of Education, CEMASTEА, and the Teachers Service Commission (TSC), continues to strengthen the practical implementation of the Computer Studies and ICT curriculum by promoting experiential learning approaches and supporting continuous professional development programmes for teachers in emerging technology fields.**

Signed:.......... Date: 01/04/2020.....
THE HON. MUCHANGI KAREMBA, M.P.
CHAIRPERSON, PUBLIC PETITIONS COMMITTEE

ANNEXURES

Annex 1: The Adoption List

Annex 2: Public Petition No. 19 of 2025 regarding policy and legislative interventions to reverse the decline in the uptake of Science, Technology, Engineering and Mathematics (STEM) and the need to strengthen Computer Science education in the country, submitted by the Computer Science Teachers Association of Kenya.

Annex 4: Minutes of proceedings




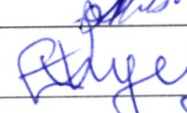
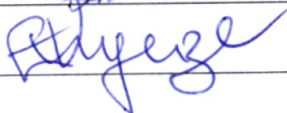
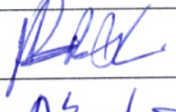
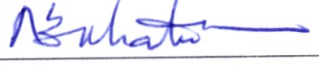
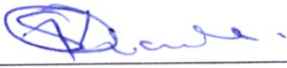

PUBLIC PETITIONS COMMITTEE

ADOPTION LIST

(i) **Consideration and adoption of the Report on Public Petition No. 11 of 2025 by Hon. Rahim Dawood, MP , regarding the compensation and land allocation to Mau Mau War Veterans**

We, the undersigned, hereby affix our signatures to this Report to affirm our approval:

DATE: 18/3/2026

	HON. MEMBER	SIGNATURE
1.	Hon. Muchangi Karemba, CBS, M.P.(Chairperson)	
2.	Hon. Janet Jepkemboi Sitienei, CBS, M.P.(Vice Chairperson)	
3.	Hon. Patrick Makau King'ola, M.P.	
4.	Hon. Beatrice Kadeveresia Elachi, CBS, M.P.	
5.	Hon. Joshua Chepyegon Kandie, M.P.	
6.	Hon. Maisori Marwa Kitayama, M.P.	
7.	Hon. Edith Vethi Nyenze, M.P.	
8.	Hon. Patrick Ntwiga Munene, M.P.	
9.	Hon. Paul Biego Kibichy, M.P.	
10.	Hon. (Eng.) Bernard Muriuki Nebart, M.P.	
11.	Hon. Peter Mbogho Shake, M.P.	
12.	Hon. Suzanne Ndunge Kiamba, M.P.	
13.	Hon. John Bwire Okano, M.P.	
14.	Hon. Sloya Clement Logova, M.P.	
15.	Hon. Peter Irungu Kihungi, M.P.	



REPUBLIC OF KENYA
THE NATIONAL ASSEMBLY
THIRTEENTH PARLIAMENT (FOURTH SESSION)

CONVEYANCE OF PUBLIC PETITION

(No. 19 of 2025)

**REGARDING POLICY AND LEGISLATIVE INTERVENTIONS TO
REVERSE THE DECLINE IN UPTAKE OF STEM AND THE NEED TO
STRENGTHEN COMPUTER SCIENCE EDUCATION IN THE COUNTRY**

- 1. Honourable Members**, Article 119 of the Constitution accords any person the right to petition Parliament to consider any matter within its authority. Further, Standing Order 225(2)(b) requires the Speaker to report to the House any Petition other than those presented by a Member.
- In this regard, **Honourable Members**, I wish to report to the House that my office has received a petition from the Computer Science Teachers Association of Kenya, a national professional body representing computing educators. The association is dedicated to ensuring that educators are fully equipped to train the next generation of technology innovators, in alignment with the country's national digital master plan and strategic objectives.
- The Petitioner highlights a concerning decline in student participation in STEM (Science, Technology, Engineering, and Mathematics) at a critical juncture marked by the rise of Artificial Intelligence (AI). Without timely intervention, the nation risks falling behind in global competitiveness, innovation, and its ability to thrive in the Fourth Industrial Revolution.

4. Honourable Members, the Petitioner commends the Teachers Service Commission (TSC) for its plan to prioritize STEM subject teachers during the scheduled recruitment of 24,000 intern teachers for junior secondary schools. Further, the Petitioner acknowledges the introduction of coding into the school curriculum in 2022, utilising platforms such as *Scratch* and *Python* within the Competency-Based Education (CBE).

5. Honourable Members, the Petitioner however raises concerns that dependence on a single introductory tool falls short of preparing students for the complexities of contemporary programming and emerging fields such as AI, Cybersecurity, and Data Science.

In addition, the robotics component in the Grade 7-9 curriculum currently lacks substantive hands-on learning opportunities, limiting its effectiveness. The initiative faces significant challenges, including a shortage of trained teachers, inadequate infrastructure, and high resource costs.

6. Honourable Members, the petitioner observes that unlike extracurricular activities such as music, drama, and sports, STEM activities, particularly robotics, the lack of formal financial and policy support, will result in unequal access, especially among marginalized communities.

This issue is exacerbated by the Kenya Science and Engineering Fair (KSEF) policy, which mandates the use of proprietary *LEGO* robotics kits. The high costs of these kits exclude affordable, open-source alternatives like *Arduino*, *Raspberry Pi Pico*, and *BBC Micro:bit*. This exclusivity fosters elitism, restricts participation, and hinders Kenya's potential to cultivate a locally relevant and scalable robotics culture.

7. The petitioner concludes by stating that these challenges have contributed to a persistent digital divide, limiting the reach and impact of STEM programs, particularly in rural areas.

8. **Honourable Members**, the Petitioners prays that the National Assembly, through the Public Petitions Committee engages the Ministry of Education to establish a National Policy and Funding Framework for STEM and Robotics and direct the Kenya Institute of Curriculum Development (KICD) to incorporate hands-on learning components in AI, Robotics, Data Science, and Cybersecurity within the curriculum.
9. **Honourable Members**, having established that the matter raised in the Petition is well within the authority of this House, I hereby commit the Petition to the Public Petitions Committee for consideration. The Committee is required to consider the Petition and report its findings to the House and to the Petitioner in accordance with Standing Order 227(2).

I thank you.



THE HON. GLADYS J. BOSS, MGH, MP
DEPUTY SPEAKER OF THE NATIONAL ASSEMBLY

Date 8/10/2025

ANNEX 2

*Amne drafted
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Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

The Clerk of the National Assembly,
Parliament Buildings,
P.O. Box 41842-00100
Nairobi.

NATIONAL ASSEMBLY
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RE: PETITION FOR URGENT POLICY AND LEGISLATIVE INTERVENTIONS TO REVERSE THE DECLINE IN STEM UPTAKE AND STRENGTHEN COMPUTER SCIENCE EDUCATION IN KENYA

20/8/25

I, Fred Ondieki Sagwe, Chairperson of the Computer Science Teachers Association of Kenya (CSTA Kenya), a classroom teacher at Sajiloni Girls School, P.O. Box 459, 01100 Kajiado:

Draw the attention of the National Assembly to the following:

1. That, the **Computer Science Teachers Association of Kenya (CSTA Kenya)**, is a national professional body for computing educators in Kenya. Its goal is to support the teaching of computer science and other computing disciplines. Based on a legislative proposal from 2025, the CSTA Kenya aims to serve as the national professional body for computing teachers, support the implementation of the "Kenya Computer Science for All" Bill, 2025, and provide continuous professional development and certification programs for teachers in areas like AI, robotics, data science, and cybersecurity. Additionally, it seeks to build a national network of educators to share best practices and resources while partnering with global organizations and industry leaders to facilitate teacher training and student development. In essence, CSTA Kenya's role is to ensure that Kenyan educators are well-equipped to train the next generation of tech innovators, aligning with the country's national digital master plan and strategies.
2. That, Kenya stands at a technological crossroads, with robotics and artificial intelligence (AI) becoming central to national development, education, healthcare, security, and economic competitiveness.
3. That, Mastercard's latest whitepaper, Harnessing the Transformative Power of AI in Africa, projects the continent's AI market to grow from USD 4.5 billion in 2025 to USD 16.5 billion by 2030, highlighting insights from Kenya, South Africa, Nigeria, and Morocco that demonstrate AI's potential to drive financial inclusion, job creation, and innovation, with up to 230 million digital jobs projected in Sub-Saharan Africa by 2030; however, critical gaps remain in infrastructure, regulation, and local talent, underscoring the need for multi-stakeholder

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Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

collaboration, investment in digital infrastructure, responsible governance, and locally rooted AI adoption to unlock transformative outcomes across key sectors such as agriculture, healthcare, education, energy, and finance.

4. **That**, Kenya faces a significant challenge with low student enrollment in Science, Technology, Engineering, and Mathematics (STEM) subjects in its senior schools. This issue is attributed to several key factors, including a severe shortage of qualified teachers, inadequate laboratory facilities and equipment, and a notable gender gap that discourages girls from pursuing these fields. The curriculum is also seen as overly theoretical, which makes students question the relevance of STEM to their future careers. In response, the Kenyan government and educational bodies have initiated measures such as prioritizing the recruitment of STEM teachers and investing in infrastructure to encourage greater student participation and meet the national target of having 60% of senior school students in the STEM pathway.
5. **That**, the Teachers Service Commission (TSC) will prioritize unemployed teachers with Science, Technology, Engineering, and Mathematics (STEM) subjects in the upcoming recruitment of 24,000 intern teachers for junior secondary schools. The commission has repeatedly warned of a severe shortage of science teachers nationwide. During an appearance before the National Assembly education committee, former TSC CEO Dr. Nancy Macharia stated that despite having over 400,000 unemployed teachers, the commission struggles to fill science teaching positions. She noted that many schools, especially junior secondary schools (JSS), are not adequately staffed with science teachers, and applications for these roles are rare. This preference for science teachers was also evident in the November 2024 recruitment of 20,000 JSS intern teachers, where candidates with science and technical subjects, such as Drawing and Design, had a higher success rate than those with arts combinations.
6. That, reports, such as the UNESCO Global Education Monitoring Report, 2023, highlight a significant digital divide. While high-income and upper-middle-income countries are increasingly making digital skills and computer science compulsory, many **low-income countries** are lagging behind. This disparity is primarily due to a lack of infrastructure, including electricity and internet connectivity, as well as a shortage of trained teachers and funding for educational resources.
7. **That**, a key global trend is the move away from basic "computer literacy" (learning to use applications) towards "**computer science**" education, which focuses on core concepts like programming, computational thinking, data science, robotics and AI. This shift is most pronounced in wealthier nations that can afford to invest in curriculum reform and teacher training.

Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

8. **That**, Kenya officially introduced coding and computer programming into the school curriculum in 2022 under the Competency-Based Curriculum (CBC), using platforms like Scratch for younger learners and Python for older students, yet the initiative has faced significant challenges including limited teacher capacity in modern programming and computational thinking, inadequate infrastructure and internet access in many schools, outdated curriculum content emphasizing theory over practical skills, high costs of proprietary robotics and coding resources, a persistent digital divide between urban and rural schools, and limited awareness among parents and administrators of coding's importance for the Fourth Industrial Revolution.
9. **That**, the rise of AI tools such as ChatGPT has exposed national examinations to new vulnerabilities, as demonstrated by the Robotics Society of Kenya (RSK) on examinations made available for the national Computer Studies Paper 451/1 and Paper 451/3, with the potential to enable cheating in Paper 451/2 between years 2024 and 2025 by the Kenya National Examinations Council (KNEC), thereby showing how AI can be used to compromise web-based assessments and underscoring the urgent need for immediate interventions to safeguard examination integrity through the development of AI-resistant electronic assessment systems.
10. **That**, according to a Voice of America (VOA) report, AI tools like ChatGPT pose a new threat to the integrity of Kenyan university students' work by enabling sophisticated cheating and negatively impacting academic assistance providers, raising significant concerns among professors about the originality of assignments and exams.
11. **That**, Kenya urgently needs a robust Computer Science education to prepare students for the digital era defined by the convergence of Artificial Intelligence (AI), robotics, cybersecurity, and data science, as such education will drive economic growth by creating a digitally skilled population that attracts investment, fosters local innovation, and enhances Kenya's global competitiveness; ensure national security by equipping citizens with cybersecurity skills and digital ethics essential for resilience in a data-driven world; and empower youth to solve real-world problems across sectors including agriculture, health, finance, and environmental conservation.
12. **That**, the national curriculum currently suffers from the misrepresentation of outdated Computer Studies content as "Computer Science," the complete absence of practical, hands-on Robotics education, and the exclusion of Artificial Intelligence (AI), Cybersecurity, and Data

Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

Science from core education pathways, contrary to the objectives outlined in the Kenya National AI Strategy (2025–2030).

13. **That**, the current curriculum, though labeled as “Computer Science,” is inadequate and misrepresented, with the Grade 10 syllabus nearly replicating the legacy 8-4-4 Computer Studies syllabus and lacking both foundational and advanced concepts of modern Computer Science; the Grade 7–9 curriculum mentions robotics but provides no hands-on learning, rendering it ineffective for developing essential design, problem-solving, and engineering skills; programming exposure is limited, relying primarily on Scratch, which, while useful as an introductory tool, is insufficient without broader engagement with modern, practical programming languages and paradigms; and classifying Computer Science solely as a “technical subject” at the Junior Secondary School (JSS) level undermines its cross-disciplinary importance and scientific rigour.
14. **That**, to achieve equitable implementation of Computer Science education, urgent challenges must be addressed, including equipping teachers with modern computing and AI pedagogical skills; building a progressive, scaffolded curriculum across all levels; introducing learners to algorithmic bias, data privacy, and responsible AI use; bridging the digital divide through solar-powered in shipping containers labs and affordable devices such as Raspberry Pi; updating the CBE to include full-spectrum computer science concepts; embedding digital ethics, responsible AI, and cybersecurity in junior and secondary education; and ensuring AI tools complement rather than replace critical thinking and core computing skills.
15. **That**, the government has pledged to enhance financial support for co-curricular activities as learners transition to the Competency-Based Education (CBE) curriculum in senior secondary school next year. Education Cabinet Secretary Julius Ogamba hailed the Kenya Music Festival (KMF) as a powerful tool for nurturing creativity, fostering cultural unity, and driving the CBE agenda, while calling for greater equity and investment in the arts. He highlighted the festival's alignment with CBE's focus on creativity, imagination, and communication, and noted its role in building self-confidence, discipline, perseverance, teamwork, and collaboration. The CS stated that the ministry, together with the National Treasury, would push for increased allocations from Parliament to ensure learners are fully supported in nurturing their talents through music, drama, and other creative arts.
16. **That**, unlike other co-curricular activities such as music, drama, and sports, the Ministry of Education and the Government of Kenya have not provided the much needed financial or policy support to robotics clubs and STEM-based extracurricular programs, thus hindering equity and inclusion in STEM education.

Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

17. **That**, robotics — unlike music, drama, and sports — does not receive any structured support or funding from the Ministry of Education or the Government of Kenya despite its centrality to 21st-century innovation.
18. **That**, Robotics clubs are vital for young students, offering an engaging introduction to STEM, AI, data science, coding, and robotics, while cultivating essential hard and soft skills like teamwork and problem-solving, thus preparing them for the future workforce. These clubs foster creativity and innovation through hands-on projects. Governments should fund them as they develop a technologically skilled future generation, drive economic growth, and ensure equitable access to crucial STEM education, ultimately leading to a more competitive nation.
19. **That**, strengthening computing education is vital to Kenya's socio-economic transformation, competitiveness, and participation in the global digital economy, with the aim of embedding computer science, AI, and digital skills into all levels of education and positioning Kenya as a digital leader in Africa.
20. **That**, the petition, submitted by the Computer Science Teachers Association of Kenya (CSTA Kenya) and concerned citizens, outlines critical concerns over the low uptake of STEM subjects—particularly Computer Science—by senior school students. It proposes immediate policy interventions to align the education system with the demands of the 21st-century workforce and Kenya's digital transformation goals. We respectfully request the National Assembly to give this matter urgent consideration and facilitate deliberation through the relevant departmental committees.
21. **That**, the Kenya Science and Engineering Fair (KSEF), organized annually by the **Centre for Mathematics, Science, and Technology Education in Africa (CEMASTEA)** under the Ministry of Education, provides a critical platform for students to showcase innovation, creativity, and scientific skills. However, despite its significance in promoting STEM education, the event is not fully supported with adequate financial resources, teaching materials, or logistical backing. The funding and support currently provided are insufficient to ensure that all participating schools and students can fully benefit from the fair, limiting the reach, quality, and impact of this important national initiative.
22. **That**, the Young Scientists Kenya (YSK) is a collaboration between the Ministry of Education, the Government of Ireland (through its Embassy in Kenya), and partners like BLAZE by Safaricom and the Raspberry Pi Foundation, has become a transformative platform that inspires and empowers young innovators by providing opportunities to showcase STEM solutions

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addressing real community challenges. Since 2018, it has reached over 250,000 students across all 47 counties, trained more than 850 teachers, facilitated 1,700 student-led projects, and awarded scholarships, patents, and mentorship opportunities, with winners even gaining international exposure. Its impact has been further strengthened through teacher upskilling programmes such as Experience AI, exhibitions, and entrepreneurship bootcamps that nurture students into future innovators and entrepreneurs. However, YSK faces challenges in scaling participation among rural schools due to budget constraints, low awareness, limited infrastructure, teacher shortages, and hidden participation costs, making it difficult for marginalized learners to fully engage. Despite these hurdles, YSK's successes highlight its vital role in advancing STEM education in Kenya, with deeper government policy integration, infrastructure investment, and equitable resource allocation needed to ensure inclusivity and sustainability.

23. **That**, the Google Educators Group Kenya (GEG Kenya) is a volunteer-led community of educators dedicated to promoting the effective use of Google tools in education, providing training, workshops, and resources to empower teachers and learners across Kenya. During the COVID-19 pandemic, GEG Kenya played a critical role in supporting remote learning and digital skills development. A notable member, Rosemary Bosibori Onyancha, a tech-savvy teacher from Moi Forces Academy Lanet, Nakuru, leveraged this platform to enhance her digital teaching capabilities and, in recognition of her innovative efforts in education and empowerment during the pandemic, was awarded the Africa Union Award in 2023. GEG Kenya continues to foster collaboration, professional development, and the integration of digital technologies in classrooms nationwide.
24. That the U.S. House of Representatives, through the Congressional App Challenge, has created a nationwide platform to inspire middle and high school students to explore computer science by developing apps on any topic and platform, with winners recognized at the U.S. Capitol and celebrated at the annual #HouseofCode event; established in 2013 with bipartisan support, the Challenge has grown significantly, engaging over 11,000 students and 3,600 apps in 2023, while emphasizing inclusivity by reaching underrepresented groups and beginners in coding, and showcasing real-world impact through innovative solutions like the award-winning "Eczema Ease" health app.
25. **That**, in September 2024, the Robotics Society of Kenya petitioned the National Assembly of Kenya for increased government funding and legislative support for the Kenya Coding Challenge.

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26. **That**, the Speaker of the National Assembly, Hon. Moses Wetang'ula's remarks affirm Parliament's commitment to creating a supportive legislative and policy environment for Kenya's digital future, while the Huawei ICT Competition stands out as more than just a contest but a strategic investment in youth, industry-ready skills, and global ICT competitiveness; the initiative highlights the value of public-private partnerships between government, industry, and academia in driving growth, even as broader concerns such as AI-driven job disruption and persistent digital skill gaps underscore the urgency for adaptability and proactive training across all sectors of society.
27. That over the past ten years, the Huawei ICT Competition has empowered thousands of Kenyan students with advanced digital skills, given them global exposure and recognition, and produced industry-ready graduates who are better aligned with workplace needs; it has created career pathways through internships and jobs, strengthened academia–industry partnerships, promoted innovation and entrepreneurship, and enhanced Kenya's ICT competitiveness; further, it has prepared youth to adapt to automation and AI disruptions, reinforced Kenya–China and global cooperation in education and technology, and established a decade-long legacy as a cornerstone of ICT excellence and a driver of national digital growth.
28. **That**, the International Telecommunication Union (ITU), a United Nations specialized agency for ICT, organizes the Robotics for Good Youth Challenge as part of its AI for Good platform, bringing together youth globally for in-person events where they design robotics projects addressing real-world challenges aligned with the Sustainable Development Goals (SDGs), with an emphasis on open-source solutions, use of recycled and locally available materials, and hands-on learning in artificial intelligence and robotics, thereby fostering innovation, sustainability, digital inclusion, and global collaboration among young people.
29. **That**, in October 2023, the Robotics Society of Kenya (RSK) called the attention of the Ministry of Education Kenya to have a national conference on the UNESCO Framework AI Guidance for Schools Toolkit: Teach AI Policy in the Kenya Education System. Despite the official digital correspondence from the Robotics Society of Kenya, the Ministry of Education has never acknowledged nor officially responded to the petition.
30. **That**, Teachers Service Commission (TSC) is the only government body responsible for teacher development according to Article 237 of the Constitution of Kenya.
31. **That**, the Kenya Institute of Curriculum Development (KICD) holds the central and official mandate for curriculum development in Kenya, its work is a collaborative effort. It functions as the coordinating and advisory body, but the entire process—from policy formulation and needs

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assessment to implementation and evaluation—is a collective responsibility of various stakeholders within the education sector and the wider community.

32. **That**, the Kenya Institute of Curriculum Development (KICD) announced in February 2025 that it was seeking applications for panels to review the curriculum for senior secondary schools, which is the final phase of implementing the Competency-Based Education (CBE) system. The KICD called for teachers, teacher educators, and other professionals to apply to help develop and review educational materials. There are concerns, however, that the KICD did not adequately involve the public, as required by the Kenyan Constitution, particularly regarding the development of the computer science curriculum.
33. **That**, the Ministry of Education in Kenya has released the subject and curriculum guidelines for senior secondary schools, which will be implemented starting in 2026. The updated curriculum expands the number of subjects to ten, with four compulsory subjects: Mathematics, English, Kiswahili, and Community Service Learning. Additionally, non-assessed subjects like Physical Education, ICT skills, and religious instruction are included to promote holistic development. Yet, as envisioned in the Kenya National Artificial Intelligence Strategy 2025-2030, the curriculum has refused to acknowledge the implications of artificial intelligence and robotics in education, the emergence of a correct curriculum for computer science, and not just computer studies. That, as currently constituted, the curricula for ICT and computer studies cannot help prepare Kenyan learners for the future of work as espoused by McKinsey, the World Economic Forum, and UNESCO, nor does it include actions, measures, and mitigation efforts like those taken by countries such as Rwanda, South Africa, Morocco, and Egypt, or as outlined in the Africa NEPAD report on the embracing of robotics in the school systems in Africa.
34. **That**, the Robotics Society of Kenya (RSK) actively participated and collaborated and partnered with The Otermans Institute (OI), who has launched the "OI Lead Initiative," a program aimed at training 25,000 Kenyan youths in AI literacy. This free, certified program is specifically for non-governmental organizations (NGOs) and charities that work in education across Kenya. The goal of the initiative is to help make Kenya a leader in AI literacy in Africa by providing essential AI skills to young people, especially in underserved communities. The program, which has a target of 25,000 participants, is scheduled to run from August 1 to August 31, 2025.
35. **That**, the Raspberry Pi Foundation, in partnership with multiple organizations in Kenya—including Oasis Mathare, Young Scientists Kenya (YSK), Kenya Connect, Tech Kidz Africa, STEAM Labs Africa, Futures Infinite, Frontier Counties Development Council (FCDC),

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Coder\LevelUp, and Team4Tech—recently reported on the positive impact of coding clubs on young people. Released in mid-August 2025, the report found that these clubs are thriving, reaching over 42,000 youth, with 89% of surveyed mentors noting increased coding skills and confidence among participants. Using a successful "train-the-trainer" model, the Foundation has empowered 1,498 mentors, providing effective access to technology, especially in disadvantaged and marginalized areas.

36. **That**, the Robotics Society of Kenya advocates for the integration of computer science education into the national curriculum. They also work with organizations like the Raspberry Pi to organize events like the Raspberry Pi Jam, a one-day event for students, teachers, and enthusiasts of robotics and AI.
37. **That**, the Robotics Society of Kenya (RSK) has a flagship project to build solar-powered computer labs in shipping containers to provide access to technology in underserved areas, and it has been recognized as a Top 20 Finalist in the SDG Digital GameChangers Award for their Solar-Powered Computer Lab in a Shipping Container for Kenyan learners, under the "Planet" category. As part of the upcoming SDG Digital event which took place on 20–21 September 2024 in New York, the award honours individuals and organizations working to rescue the Global Goals through digital innovation. This remarkable achievement highlights the impact of RSK's innovative submission, acknowledged by a high-level jury of experts. The SDG Digital event, supported by the UN System, the International Telecommunications Union (ITU), and the United Nations Development Programme (UNDP), brings together leaders in youth, government, private sector, and more to advance the Global Goals through digital innovation.
38. **That**, the Robotics Society of Kenya (RSK), in partnership with the Scratch Foundation, trains teachers on using Scratch programming to teach computer science in the CBE. They have held meetups in locations including Nakuru, Nairobi, and Mombasa to prepare educators. The Scratch Educators Meetups are a global initiative designed as peer-led professional learning experiences for teachers passionate about teaching with Scratch, allowing them to share ideas, create, and learn from one another. In Kenya, the Nairobi Scratch Educator Meetup is highlighted as a collaboration between the Scratch Foundation and the STEM Impact Center Kenya, while other organizations, such as RSK and the African Maths Initiative, also conduct Scratch workshops.
39. **That**, the Kenya Science and Engineering Fair (KSEF), a flagship national co-curricular event organized under the Ministry of Education, includes a Robotics category aimed at promoting creativity, innovation, and problem-solving among students.

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40. **That**, the Kenya Science and Engineering Fair (KSEF), under the Ministry of Education, has continuously and exclusively dictated the use of proprietary LEGO robotics systems (Mindstorms and LEGO Education SPIKE) in the Robotics category of the competition, excluding more affordable and open-source alternatives;
41. **That**, the KSEF Robotics category has continued to monopolize and single-source the use of the proprietary LEGO Mindstorms and LEGO Education SPIKE robotics kits, which retail at approximately Kshs 85,000, making them unaffordable for the majority of Kenyan public schools.
42. **That**, affordable, open-source alternatives such as Arduino (Kshs 7,000), Raspberry Pi Pico (Kshs 1,500, locally manufactured by Gearbox Kenya and Gearbox Europlacer), and BBC Micro:bit (Kshs 7,000) are being ignored, sidelined, or explicitly prohibited in the competition, despite being more accessible and better aligned with Kenya's local innovation ecosystems.
43. **That**, although LEGO systems such as SPIKE are user-friendly for beginners, the competition's single-sourcing approach bars innovative platforms such as Arduino (Kshs 7,000), Raspberry Pi Pico (Kshs 1,500, locally manufactured by Gearbox Kenya/Europlacer), and BBC Micro:bit (Kshs 7,000) — all of which are open-source, cost-effective, and powerful tools for physical computing, robotics, AI, and IoT education.
44. **That**, in October 2022, LEGO officially announced the discontinuation of the Mindstorms product line in favour of SPIKE Prime and SPIKE Essential, which are not compatible with older LEGO systems, further compounding the financial burden on schools.
45. **That**, between 2024 and 2025, the Robotics Society of Kenya (RSK) sent official digital communications to CEMASTEА, the Kenya Science and Engineering Fair (KSEF), and the Ministry of Education regarding their robotics initiatives, yet these communications remain unacknowledged; KSEF has further imposed the exclusive use of costly proprietary LEGO robotics kits, such as LEGO Mindstorms and LEGO Education SPIKE, costing around Kshs 85,000, thereby excluding affordable and open-source alternatives and creating a monopoly. Copies of these communications were sent to the Ministry of Education, Ministry of ICT and the Digital Economy, Teachers Service Commission (TSC), Ministry of Interior and National Administration, Kenya National Examinations Council (KNEC), CEMASTEА, the Kenya Institute of Special Education, and the Commission on Administrative Justice (Office of the Ombudsman), the only body to acknowledge receipt. To date, the lack of response violates Article 35 of the Constitution of Kenya, which guarantees every citizen access to information held by public bodies, and this continued silence jeopardizes the future of Kenyan learners in a

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digital and AI-driven global economy, making urgent the implementation of a 21st-century Computer Science education strategy.

46. **That**, the Kenya Institute of Curriculum Development (KICD) has incorporated a Robotics section in the Grade 7–9 Computer Studies (computer science) curriculum, indicating the need for inclusive national robotics policies and broader access to tools.
47. **That**, the Robotics Society of Kenya (RSK) has just released and shared with the Kenya Institute of Curriculum Development (KICD) a proposal for a Prototype Curriculum Framework for Artificial Intelligence, Data Science, Robotics, and Cybersecurity from primary to university, as envisaged in the Kenya National Artificial Intelligence Strategy 2025-2030 and the draft proposal for the Kenya Computer Science for All Bill, 2025. The RSK has engaged in digital correspondence with the KICD within the 2024-2025 year, but the latter has not acknowledged or officially communicated in response to these efforts.
48. **That**, robotics is fundamental to AI, shaping global sectors like healthcare, agriculture, manufacturing, and transport.
49. **That**, continued exclusion of open-source robotics platforms undermines Kenya's goals in digital literacy, local manufacturing, and the development of 21st-century skills among students.
50. **That**, the robotics adoption in Kenya is gaining momentum, driven by educational reforms, youth innovation, and national digital strategies like the Digital Masterplan (2022–2032). Schools are integrating robotics through clubs and CBE-aligned curricula using kits like Micro:bit and Raspberry Pi, while innovation hubs such as Gearbox and university labs like JKUAT's Automation Lab are supporting local development and research. Despite growing interest, challenges such as high equipment costs, lack of skilled trainers, and limited infrastructure persist, especially in underserved regions. However, opportunities lie in developing low-cost local kits, integrating robotics into STEM education, promoting robotics for agriculture and disability inclusion, and establishing national policy frameworks. With coordinated support from government, academia, and industry, Kenya can position itself as a regional leader in African-centered robotics innovation.
51. **That**, the EU's potential Robotics Continental Strategy in 2025, following its AI strategy, is crucial for leveraging the AI-robotics synergy, addressing unique robotics challenges and opportunities (like innovation, safety, ethics, and workforce development), boosting Europe's global competitiveness in robotics across industries, and coordinating member state efforts for a

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unified and dynamic market, ultimately driving economic growth and societal benefit across the EU.

52. **That**, leading countries such as the U.S., China, and the EU are advancing robotics strategies as part of economic and technological competitiveness.
53. **That**, globally, there is a growing consensus on the need for strategic integration of robotics and AI into national policy frameworks. On Wednesday, March 27, 2025, leading U.S. robotics companies—including Tesla, Boston Dynamics, and Agility Robotics—met with lawmakers on Capitol Hill in Washington to advocate for the establishment of a national robotics strategy, a central robotics office, and dedicated funding. This historic move underscores the critical role of robotics and AI in securing national competitiveness and innovation.
54. **That**, likewise, the European Union is preparing to release a Robotics National Strategy to harmonize and support AI-powered robotics across its member states. These developments reflect the global trend toward coordinated national approaches to digital transformation and emerging technologies.
55. **That**, global precedents demonstrate the value of integrating robotics into education, with countries such as South Korea, the UAE, and China embedding robotics clubs as part of national education reforms; international frameworks like FIRST Robotics (USA) and the World Robot Olympiad (WRO) serving as models for youth engagement in robotics; and nations such as South Africa, Egypt, and Rwanda advancing school robotics through public-private partnerships and government support.
56. **That**, the State of California, USA, has implemented a comprehensive digital approach to K–12 education by adopting a wide range of digital instructional materials and resources across various subject areas, including mathematics, English language arts, science, and history-social science, through the California State Board of Education's adoption process. These materials are designed to align with state content standards and are accessible both online and offline, ensuring equitable access for all students, including those in rural areas with limited internet connectivity. Additionally, the California Open Source Textbook Project has contributed to the development of open-licensed digital textbooks, further reducing costs and increasing accessibility for students and educators.
57. **That**, international and American computer science teacher associations provide global best practices, standards, and professional development frameworks, including curriculum guidelines, teacher certification pathways, training programs, and research-backed policy

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recommendations, to strengthen national computing education systems and ensure alignment with emerging technologies and the future of work.

58. **That**, the Ministry of Education has emphasized the importance of digital skills and computing education at all levels of learning in Kenya in preparing learners for the future of work.
59. **That**, teachers of computer science and related computing disciplines currently lack a recognized national professional body mandated to support their professional growth, regulate standards, and provide certification in specialized areas.
60. **That**, the Computer Science Teachers Association of Kenya (CSTA Kenya) has been established to fill this critical gap by supporting computing educators nationwide.
61. **That**, recognition of CSTA Kenya as a national professional body will ensure structured continuous professional development and certification programs for teachers in emerging fields such as Artificial Intelligence, Robotics, Data Science, and Cybersecurity.
62. **That**, it will provide a coordinated national network for computing educators to share best practices, teaching resources, and innovative pedagogies, thereby improving the quality of computing education in Kenya.
63. **That**, CSTA Kenya will also serve as a platform to facilitate partnerships with global organizations and industry leaders, enabling teacher training and student development opportunities aligned with international standards.
64. **That**, [Microsoft's Windows 10](#) security updates are ending on October 14, 2025. This raises a number of concerns, including the risk of leaving electronic waste and the added cost to schools and institutions that will need to either upgrade to Windows 11 or pay for extended security updates.
65. **That**, AI agents are poised to revolutionize education by personalizing learning through adaptive tutoring, automated assessment, and AI-generated content, ultimately enhancing student engagement and freeing up educators' time, while in the future of work, they will automate repetitive tasks, enhance decision-making, improve efficiency, personalize customer service, streamline HR, and accelerate research, necessitating workforce reskilling to adapt to the evolving job market that will increasingly value uniquely human skills augmented by AI.

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66. **That**, open-source resources like Linux and Arduino are vital in education due to their cost-effectiveness, enhanced accessibility and customization for tailored learning, promotion of technological transparency and computational thinking, strong community support, and provision of hands-on STEM learning experiences. Linux offers a stable programming environment, while Arduino fosters practical application and innovation. Embracing open source cultivates collaboration, innovation, and digital literacy affordably and accessibly, empowering educators and learners alike.
67. **That**, vibe coding—an engaging, intuitive approach using visual or block-based tools—greatly enhances AI and robotics education within Kenya’s CBE-aligned Computer Science curriculum by making complex concepts accessible to learners of all levels. It lowers entry barriers through tools like Scratch and MakeCode, supports creative AI experimentation with platforms like Teachable Machine, and offers hands-on robotics learning via Micro:bit and LEGO EV3. Vibe coding fosters collaboration, supports inclusive learning for students with disabilities or in low-resource settings, and enables a smooth transition to advanced coding with Python and AI frameworks. This approach is suitable from primary through university levels, empowering students to build real-world tech solutions while nurturing critical 21st-century skills.
68. **That**, Anthropic CEO Dario Amodei recently said he believes AI will soon be writing 90 percent of all code. And Amazon CEO and President Andy Jassy said his company will hire fewer software engineers thanks to AI.
69. **That**, evidence certainly seems to be growing that generative AI tools can carry out many of the tasks associated with coding and programming. Commonly cited use cases include creating new code, optimizing existing code, detecting bugs, explaining code, maintaining documentation and detecting security vulnerabilities. Although quantitative research is limited at this point, one study found that programmers assisted by Microsoft’s AI coding assistant, GitHub Copilot, have been able to complete tasks 55 percent faster than those without.
70. **That**, Ethiopia and Nigeria are joining forces to develop a fleet of African-made drones capable of both civilian and military applications.
71. **That**, the UAE has become the first country to systematically integrate AI into its lawmaking process by establishing the Regulatory Intelligence Office. This AI system will analyze vast legal and public data to suggest updates, aid in drafting new laws, monitor their impact, and benchmark against international standards, aiming for increased speed, precision, clarity, and reduced costs. While AI is expected to streamline the legislative process significantly, human oversight will remain crucial to ensure fairness and context in the final legal decisions. This

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initiative reflects the UAE's broader digital transformation goals and could serve as a pioneering model for AI in governance globally.

72. **That**, the work of the Robotics Society of Kenya (RSK) on the national discourse surrounding AI and robotics has indeed been recognized and featured in key national documents. Specifically, the RSK's contributions were included in the Kenya National Artificial Intelligence Strategy 2025-2030 and the Kenya: artificial intelligence readiness assessment report - UNESCO. This highlights the significant role the RSK is playing in shaping the national conversation and policy direction for these crucial emerging technologies in Kenya.
73. **That**, on 9 July 2023, Robotics Society of Kenya published a public blog titled "Advancing STEM Education in Kenya: The Robotics Society of Kenya Calls for the Establishment of Robotics Clubs in Schools and Institutions" calling for the establishment and government funding of Robotics Clubs in schools and institutions.
74. **That**, Robotics Society of Kenya drafted the Kenya Robotics and Artificial Intelligence Society Bill, 2023, which is currently before the National Assembly's public participation committee.
75. **That**, the "Kenya Robotics and Artificial Intelligence Bill, 2023", champions the growth of AI and robotics education by establishing a framework for training, school clubs, and public awareness. This foundational support naturally encourages the integration of ethical considerations, critical thinking, and a focus on societal benefit within the curriculum, fostering subjective discussions on the responsible development and use of these technologies for Kenya's advancement.
76. **That**, on 10 March 2025, Robotics Society of Kenya released a detailed report titled Integrating Raspberry Pi into Kenya's CBC: Enhancing Computer Science, AI, Chess, and Robotics, showcasing how affordable tools can empower CBE implementation.
77. **That**, the Robotics Society of Kenya (RSK) has petitioned the National Assembly and the Ministry of Finance regarding the Finance Bill 2025, emphasizing the need to safeguard Robotics and Artificial Intelligence education, as outlined in their publication Why Kenya's Finance Bill 2025 Must Safeguard Robotics and Artificial Intelligence Education.
78. **That**, by fusing robotics, coding, AI, and sustainability, the initiatives will act as a catalyst for climate-smart education, equipping a generation of Kenyan learners and communities with the tools and mindset to innovate for climate resilience and green growth.

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79. **That**, Kenya must not be left behind. In line with global best practices and national aspirations under Vision 2030 and the Digital Superhighway pillar of the Bottom-Up Economic Transformation Agenda (BETA).
80. **That**, I submit this petition in an effort to have the National Assembly discuss, review, make recommendations, regarding the monopolization of the robotics category at the Kenya Science and Engineering Fair (KSEF) and the exclusion of affordable, open-source educational robotics platforms.
81. **That**, none of the issues raised in this petition is pending in any court of law, constitutional, or any other legal body.

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Therefore, your humble **Petitioners** prays that the National Assembly:

- a) to urge the National Assembly of Kenya to provide increased government funding and legislative support for the Kenya Coding Challenge, as petitioned by the Robotics Society of Kenya in September 2024.
- b) to urge the Kenya Institute of Curriculum Development (KICD) to immediately engage stakeholders, including the the Computer Science Teachers Association of Kenya (CSTA Kenya), in co-developing a modern, inclusive, and industry-relevant computing curriculum; adopt accurate and transparent curriculum labeling by reserving the term “Computer Science” for content reflecting modern computing disciplines such as software engineering, AI, robotics, cybersecurity, data science, and embedded systems; transition from static textbooks to digital content platforms for frequent updates and integration with global tools; partner with open-source content providers, EdTech platforms, and NGOs to co-develop accessible learning materials; and ensure computing education under the CBE aligns with Pre-Technical, STEM, and ICT pathways, rather than being confined to technical streams with limited academic value.
- c) to recognize and grant national authority to the Computer Science Teachers Association of Kenya (CSTA Kenya) as a national professional body for computing educators. This would give the CSTA Kenya the mandate to support the teaching of computer science and other computing disciplines; provide continuous professional development and certification programs for teachers in areas such as AI, robotics, data science, and cybersecurity; build a national network of educators to share best practices and resources; and partner with global organizations and industry leaders to facilitate teacher training and student development.
- d) to summon the Kenya Institute of Curriculum Development (KICD) and the Ministry of Education to provide a detailed report on the implementation of AI, Robotics, Cybersecurity, and Data Science in Basic Education, in alignment with the Kenya National AI Strategy 2025–2030.
- e) to urge the National Assembly of Kenya to recognize and support robotics clubs in schools by providing funding and resources, including grants or subsidies for robotics kits, laptops, and maker equipment, ensuring equitable access for underserved and rural schools, and promoting zero-rating of educational AI and robotics software, digital learning platforms, Raspberry Pi, Micro\bit, LEGO kits, and sensors, thereby enabling learners to build, code, and operate

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robots, engage in STEM and AI-related projects that address real-world challenges, and participate in national and international competitions and innovation showcases.

- f) to urge the National Assembly to ensure that, as envisaged in the "Kenya Computer Science for All" Bill, 2025, Computer Science is implemented as either an elective or mandatory subject at all levels of the Kenyan education system, and that equitable implementation addresses critical challenges, including equipping teachers with modern computing and AI pedagogical skills; building a progressive, scaffolded curriculum across all levels; introducing learners to algorithmic bias, data privacy, and responsible AI use; bridging the digital divide through solar-powered labs and affordable devices such as Raspberry Pi; updating the CBE to include full-spectrum computer science concepts; embedding digital ethics, responsible AI, and cybersecurity in junior and secondary education; and ensuring AI tools complement rather than replace critical thinking and core computing skills.
- g) to ensure that Kenya's AI strategy and robotics policy development should inclusively engage all key stakeholders, such as the Ministry of Education, Teachers Service Commission (TSC), Ministry of ICT and Digital Economy, county governments, civil society and communities, Ministry of Health, Ministry of Agriculture, Ministry of Industrialization, Trade and Enterprise Development, and the Ministry of Roads and Transport.
- h) to track progress and publicly report STEM outcomes annually.
- i) to urge the National Assembly to adopt key interventions for safeguarding national examinations by enhancing proctoring and authentication through AI-powered tools such as facial recognition, keystroke analysis, secure browser lockdowns, and biometric logins; integrating AI detection tools like GPTZero and Turnitin AI Detection for real-time monitoring of irregular response patterns; amending the Kenya National Examinations Council (KNEC) Act to define AI-assisted cheating and its legal consequences while establishing a Cybersecurity and AI Ethics Policy for national exams and mandating the inclusion of computer science teachers and school principals in stakeholder forums; and supporting collaborative research and pilots through the formation of a National Task Force on AI-Resistant Exams involving KNEC, MoE, the Ministry of ICT, RSK, and EdTech partners, benchmarking with Google for Education's secure models, and conducting pilots with Microsoft, the Raspberry Pi Foundation, Micro\bit, and Huawei Kenya to develop secure, inclusive digital assessments.

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- j) to ensure that the Ministry of Education Kenya has a national conference on the UNESCO Framework AI Guidance for Schools Toolkit: Teach AI Policy in the Kenya Education System.
- k) to train and support teachers, leveraging CSTA Kenya alongside TSC.
- l) to recommend that the Ministry of Education and relevant partners strengthen the Senior School curriculum by positioning Computer Studies as an alternative pathway for learners while recognizing Computer Science as a distinct STEM subject. While ICT skills have been suggested for integration at all levels, the current ICT curriculum may not adequately prepare students for the evolving demands of the future workforce. By offering Computer Studies alongside ICT and elevating Computer Science as a rigorous STEM discipline, learners will gain both practical digital skills and deeper computational knowledge, ensuring they are equipped for diverse career pathways in the digital economy. This policy shift will align Kenya's education system with global best practices, foster innovation, and build a future-ready workforce.
- m) to enable and facilitate the Computer Science curriculum from Grade 10-12, it should not be categorized as a technical subject, but rather separately as a STEM subject.
- n) to support the implementation of the Kenya Computer Science for All Bill, 2025, and provide continuous professional development and certification programs for teachers in areas like AI, robotics, data science, and cybersecurity, as contained in the advisory and envisioned in the Kenya National Artificial Intelligence Strategy 2025-2030.
- o) to develop solar-powered ICT labs, specifically a solar-powered computer lab in a shipping container for Kenyan learners.
- p) to provide equitable access to labs, digital tools, and learning resources.
- q) to investigate and audit the procurement practices and decision-making processes behind the exclusive use of LEGO robotics platforms in KSEF.
- r) to direct the Ministry of Education and other relevant agencies to ensure inclusive participation in the Robotics category by allowing open-source platforms such as Arduino, Raspberry Pi, and BBC Micro:bit.

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- s) to recommend the provision of government support and funding for robotics and STEM clubs in all schools, similar to other co-curricular activities like drama and sports.
- t) to establish a central National Robotics Coordination Office in Nairobi by the Kenyan Parliament is crucial for strategic national coordination, educational advancement, economic growth, addressing societal challenges, developing policy frameworks, fostering international collaboration, promoting local manufacturing, and ensuring ethical and inclusive development of robotics, ultimately harnessing its transformative potential for Kenya's progress across various sectors.
- u) to promote teacher upskilling in AI and robotics professional development: Partner with teacher training institutions to offer continuous professional development in eco-robotics, green engineering, and sustainability pedagogy.
- v) to have policy advocacy: Work with KICD, TSC, and the Ministry of Education to integrate robotics and artificial intelligence in education competencies into national teacher training frameworks.
- w) to enact a policy frameworks that promote the use of affordable, locally manufactured, and open-source educational technologies to support the Competency-Based Education (CBE);
- x) to ensure that robotics education in Kenya is equitable, locally relevant, and future-ready.
- y) in line with the Public Petitions Committee's prior consideration on 18 June 2023 during the Kenya Robotics and Artificial Intelligence Society Bill deliberations, we respectfully petition the National Assembly to grant national authority to the Robotics Society of Kenya (RSK).
- z) to urge the National Assembly and the Ministry of Finance to safeguard Robotics and Artificial Intelligence education in the Finance Bill 2025, as petitioned by the Robotics Society of Kenya (RSK).
- aa) to offer Tax relief for AI/robotics startups building local learning solutions" means giving financial and tax-related incentives to Kenyan startups that are developing educational technologies, tools, or platforms related to artificial intelligence (AI) and robotics, especially those serving local schools, students, and communities.

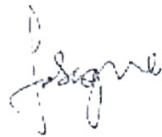
Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

bb) to urge the National Assembly of Kenya to adopt and promote the use of open-source educational materials and resources in schools to lower learning costs, expand access to quality content, and foster innovation in teaching and learning.

cc) to recommend that the Computer Science curriculum shall be reviewed every three years to ensure relevance, alignment with global trends, and responsiveness to emerging technologies and the future of work.

dd) to urge the National Assembly of Kenya to adopt and integrate digital instructional materials, open educational resources, and interactive learning tools in schools, following the example of the State of California, USA, in order to reduce reliance on paperwork, lower costs, increase accessibility, and enhance the quality of teaching and learning in computer science and other subjects.

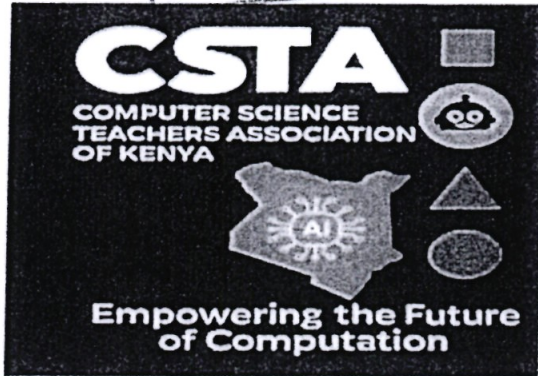
And your **PETITIONERS** will ever pray.

Name	Full address	National ID/Passport no	Phone No.	Signature
Fred Ondieki Sagwe	Sajiloni Girls Secondary School, P.O. Box 459-01100, Kajiado	BK117283	071594984	

Dated this18th.....day of..... August..... 2025

Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

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22 SEP 2025
SERIAL No.
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Computer Science Teachers Associatio
of Kenya (CSTA Kenya)

P.O. Box 459, 01100 Kajiado ,Kenya

Tel: + 254715949845 / 254750947073

Email: cstakenya@gmail.com

Website: https://cstakenyacsteachers.substack.co

Subject: Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

To:

The Clerk of the National Assembly,
Parliament Buildings,
P.O. Box 41842-00100
Nairobi.

① DLPS
Please deal
20/08/25

Cc:

- Ministry of Education
- Teachers Service Commission (TSC)
- Kenya Institute of Curriculum Development (KICD)
- Kenya National Examinations Council (KNEC)
- Centre for Mathematics, Science and Technology Education in Africa (CEMASTEА)
- Commission on Administrative Justice (Ombudsman Kenya)
- Ministry of ICT and the Digital Economy

② Head, PAJ
to acknowledge,
register and process
20-08-25

NATIONAL ASSEMBLY
PETITIONS DESK
23 AUG 2025
SERIAL No. 714
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20 AUG 2025
DEPUTY CLERK, S. ALUWA
P.O. BOX 41842, NAIROBI

NATIONAL ASSEMBLY
RECEIVED
19 AUG 2025
CLERK'S OFFICE
P.O. Box 41842, NAIROBI

- Ministry of Interior and National Administration

We, the undersigned, state as follows:

1. Urgency of the Matter

Kenya is facing a worrying decline in STEM (Science, Technology, Engineering, and Mathematics) uptake among students, despite being at a pivotal moment in the Age of Artificial Intelligence (AI). Without urgent intervention, the nation risks falling behind in global competitiveness, innovation, and the Fourth Industrial Revolution.

- A. Kenya introduced coding into its school curriculum in 2022, using platforms like Scratch and Python as part of the Competency-Based Curriculum (CBC). However, the initiative faces significant hurdles, including a shortage of trained teachers, inadequate infrastructure, and the high cost of resources. These challenges have created a persistent digital divide, limiting the program's reach and effectiveness, especially in rural areas.

- B. The Teachers Service Commission (TSC) will prioritize STEM subject teachers in the upcoming recruitment of 24,000 intern teachers for junior secondary schools. The commission has repeatedly highlighted a nationwide shortage of science teachers, with many schools inadequately staffed in these subjects. This preference for STEM teachers was also observed in previous recruitment drives, where candidates with science and technical skills had a higher success rate.

2. Importance of Distinguishing Computer Science from IT

While Information Technology (IT) often overlaps with computer science, IT is mainly focused on industrial applications such as installing and operating software rather than creating it. IT professionals often rely on a computer science foundation but focus on usage and deployment.

By contrast, Computer Science emphasizes why and how computers work—the core knowledge required to create technologies, innovate, and ensure digital rights and responsibilities.

A shift from computer literacy to computer science is a key global trend. Nations are moving away from teaching students merely how to use applications, toward teaching computational thinking, programming, robotics, AI, data science, and cybersecurity. This shift is most advanced

in high-income countries that have invested in curriculum reform and teacher training, while low-income nations, including Kenya, continue to lag due to infrastructure, funding, and teacher capacity gaps.

The UNESCO Global Education Monitoring Report 2023 highlights this digital divide: wealthier nations increasingly make digital skills and computer science compulsory, while lower-income nations lack access to electricity, internet, and trained teachers and educators.

3. Weaknesses in the Current Curriculum

Kenya's current Computer Studies curriculum is inadequate. Though robotics is mentioned in the Grade 7–9 curriculum, there is no meaningful hands-on learning, rendering it ineffective. The reliance on a single introductory tool such as Scratch is insufficient to prepare students for the complexities of modern programming and emerging technologies like AI, cybersecurity, and data science. This prepares students for the past, not the future.

4. The Looming AI Threat to Education Integrity

The rapid rise of AI tools such as ChatGPT has exposed vulnerabilities in our examination system. Demonstrations by the Robotics Society of Kenya (RSK) have shown that AI can compromise web-based assessments, undermining the credibility of national exams. This highlights the urgent need for AI-resistant assessment systems, and for a curriculum that embeds digital ethics, cybersecurity awareness, and responsible AI use so that our youth are creators, not just consumers of AI.

5. Financial Barriers to STEM Innovation

Unlike music, drama, and sports, STEM extracurriculars such as robotics lack structured financial and policy support. This has created inequity in access, particularly for marginalized communities.

The situation is worsened by the Kenya Science and Engineering Fair (KSEF) policy that mandates the use of proprietary LEGO robotics kits costing over Kshs 85,000. This excludes affordable open-source alternatives like Arduino (Kshs 7,000), Raspberry Pi Pico (Kshs 1,500), and BBC Micro:bit (Kshs 7,000). Such exclusivity fosters elitism, locks out schools, and denies Kenya the chance to build a locally relevant, scalable robotics culture.

Why This Matters: The Path to Digital Leadership

A strong Computer Science education is a necessity, not a luxury.

- Drive Economic Growth: A digitally skilled workforce will attract investment, spur innovation, and boost competitiveness. With up to 230 million digital jobs projected in Sub-Saharan Africa by 2030 (Mastercard Whitepaper), Kenya must seize this opportunity.

- Ensure National Security: Digital literacy in cybersecurity and ethical AI use is vital for resilience in the data-driven world.

- Empower Youth: Equips young people with the skills to solve real-world challenges in healthcare, agriculture, finance, and conservation.

Recognizing CSTA Kenya as the national professional body for computing educators will be a game-changer. This will ensure structured professional development, provide a coordinated network for educators to share best practices, and facilitate partnerships with global organizations and industry leaders. It will fill a critical gap left by the current system, where the Teachers Service Commission (TSC), while responsible for teacher development, lacks the specialized focus on emerging technologies.

Prayer of the Petition

We therefore humbly petition the National Assembly to:

1. Recognize and Grant Authority to CSTA Kenya:

- Recognize the Computer Science Teachers Association of Kenya (CSTA Kenya) as the national professional body for computer science educators.

- Mandate it to support computing education, provide professional development and certification, build a national teacher network, and partner with global organizations such as CSTA International and CSTA America.

2. Mandate an Urgent Curriculum Review:

- Direct KICD to urgently reform the national Computer Studies curriculum.

- Introduce progressive, scaffolded computer science education from primary to senior secondary school.

- Incorporate hands-on learning in AI, Robotics, Data Science, and Cybersecurity.

- Embrace open-source platforms (Arduino, Raspberry Pi, Micro:bit) to ensure affordable and locally aligned innovation.

- Treat Computer Science as a core scientific discipline, not a technical afterthought.

- Embed digital ethics and responsible AI across all levels of learning.

3. Establish a National Policy & Funding Framework for STEM and Robotics:

- Provide dedicated funding for robotics clubs and STEM extracurriculars in all schools, including marginalized regions.
- Direct KSEF to end restrictive single-sourcing of robotics kits, allowing affordable, open-source alternatives.
- Foster public-private partnerships inspired by Young Scientists Kenya (YSK) and the Huawei ICT Competition, and the Raspberry Pi Foundation.
- Explore the creation of a national robotics office or dedicated STEM innovation fund, drawing lessons from global precedents in the U.S., China, and EU.

Conclusion

Kenya stands at a crossroads. To reverse the decline in STEM uptake and prepare youth for the Age of AI, bold action is needed. Recognizing CSTA Kenya as the national professional body, reforming the curriculum, and funding STEM extracurriculars will ensure equity, innovation, and future-readiness.

This is the wake-up call Kenya cannot afford to ignore.

About CSTA Kenya

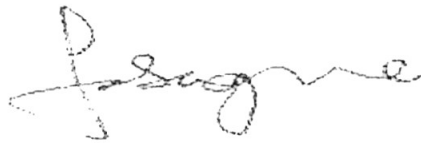
The **Computer Science Teachers Association of Kenya (CSTA Kenya)**, is a national professional body for computing educators in Kenya. Its goal is to support the teaching of computer science and other computing disciplines. Based on a legislative proposal from 2025, the CSTA Kenya aims to serve as the national professional body for computing teachers, support the implementation of the "Kenya Computer Science for All" Bill, 2025, and provide continuous professional development and certification programs for teachers in areas like AI, robotics, data science, and cybersecurity. Additionally, it seeks to build a national network of educators to share best practices and resources while partnering with global organizations and industry leaders to facilitate teacher training and student development. In essence, CSTA Kenya's role is to ensure that Kenyan educators are well-equipped to train the next generation of tech innovators, aligning with the country's national digital master plan and strategies.

1.

Respectfully submitted,

Thank you for your time and consideration.

Sincerely,

A handwritten signature in black ink, appearing to read 'Fred Sagwe', written in a cursive style.

Signed,

Yours,

Fred Sagwe

Classroom Teacher, Sajiloni Girls Secondary, Chairperson, Computer Science Teachers Association of Kenya (CSTA Kenya), and Lead Organizer: Nakuru Scratch Educator Meetups

Email: cstakenya@gmail.com

Mobile: +254715949845

Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

The Clerk of the National Assembly,
Parliament Buildings,
P.O. Box 41842-00100
Nairobi.

Head of
Please forward
Propstair in
25/8.

DDLPS

8/25/08/25

RE: PETITION FOR URGENT POLICY AND LEGISLATIVE INTERVENTIONS TO REVERSE THE DECLINE IN STEM UPTAKE AND STRENGTHEN COMPUTER SCIENCE EDUCATION IN KENYA

I, Fred Ondieki Sagwe, Chairperson of the Computer Science Teachers Association of Kenya (CSTA Kenya), a classroom teacher at Sajiloni Girls School, P.O. Box 459, 01100 Kajiado:

Draw the attention of the National Assembly to the following:

1. That, the **Computer Science Teachers Association of Kenya (CSTA Kenya)**, is a national professional body for computing educators in Kenya. Its goal is to support the teaching of computer science and other computing disciplines. Based on a legislative proposal from 2025, the CSTA Kenya aims to serve as the national professional body for computing teachers, support the implementation of the "Kenya Computer Science for All" Bill, 2025, and provide continuous professional development and certification programs for teachers in areas like AI, robotics, data science, and cybersecurity. Additionally, it seeks to build a national network of educators to share best practices and resources while partnering with global organizations and industry leaders to facilitate teacher training and student development. In essence, CSTA Kenya's role is to ensure that Kenyan educators are well-equipped to train the next generation of tech innovators, aligning with the country's national digital master plan and strategies.
2. That, Kenya stands at a technological crossroads, with robotics and artificial intelligence (AI) becoming central to national development, education, healthcare, security, and economic competitiveness.
3. That, Mastercard's latest whitepaper, Harnessing the Transformative Power of AI in Africa, projects the continent's AI market to grow from USD 4.5 billion in 2025 to USD 16.5 billion by 2030, highlighting insights from Kenya, South Africa, Nigeria, and Morocco that demonstrate AI's potential to drive financial inclusion, job creation, and innovation, with up to 230 million digital jobs projected in Sub-Saharan Africa by 2030; however, critical gaps remain in infrastructure, regulation, and local talent, underscoring the need for multi-stakeholder

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Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

collaboration, investment in digital infrastructure, responsible governance, and locally rooted AI adoption to unlock transformative outcomes across key sectors such as agriculture, healthcare, education, energy, and finance.

4. **That**, Kenya faces a significant challenge with low student enrollment in Science, Technology, Engineering, and Mathematics (STEM) subjects in its senior schools. This issue is attributed to several key factors, including a severe shortage of qualified teachers, inadequate laboratory facilities and equipment, and a notable gender gap that discourages girls from pursuing these fields. The curriculum is also seen as overly theoretical, which makes students question the relevance of STEM to their future careers. In response, the Kenyan government and educational bodies have initiated measures such as prioritizing the recruitment of STEM teachers and investing in infrastructure to encourage greater student participation and meet the national target of having 60% of senior school students in the STEM pathway.
5. **That**, the Teachers Service Commission (TSC) will prioritize unemployed teachers with Science, Technology, Engineering, and Mathematics (STEM) subjects in the upcoming recruitment of 24,000 intern teachers for junior secondary schools. The commission has repeatedly warned of a severe shortage of science teachers nationwide. During an appearance before the National Assembly education committee, former TSC CEO Dr. Nancy Macharia stated that despite having over 400,000 unemployed teachers, the commission struggles to fill science teaching positions. She noted that many schools, especially junior secondary schools (JSS), are not adequately staffed with science teachers, and applications for these roles are rare. This preference for science teachers was also evident in the November 2024 recruitment of 20,000 JSS intern teachers, where candidates with science and technical subjects, such as Drawing and Design, had a higher success rate than those with arts combinations.
6. That, reports, such as the UNESCO Global Education Monitoring Report, 2023, highlight a significant digital divide. While high-income and upper-middle-income countries are increasingly making digital skills and computer science compulsory, many **low-income countries** are lagging behind. This disparity is primarily due to a lack of infrastructure, including electricity and internet connectivity, as well as a shortage of trained teachers and funding for educational resources.
7. **That**, a key global trend is the move away from basic "computer literacy" (learning to use applications) towards "**computer science**" education, which focuses on core concepts like programming, computational thinking, data science, robotics and AI. This shift is most pronounced in wealthier nations that can afford to invest in curriculum reform and teacher training.



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Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

8. **That**, Kenya officially introduced coding and computer programming into the school curriculum in 2022 under the Competency-Based Curriculum (CBC), using platforms like Scratch for younger learners and Python for older students, yet the initiative has faced significant challenges including limited teacher capacity in modern programming and computational thinking, inadequate infrastructure and internet access in many schools, outdated curriculum content emphasizing theory over practical skills, high costs of proprietary robotics and coding resources, a persistent digital divide between urban and rural schools, and limited awareness among parents and administrators of coding's importance for the Fourth Industrial Revolution.
9. **That**, the rise of AI tools such as ChatGPT has exposed national examinations to new vulnerabilities, as demonstrated by the Robotics Society of Kenya (RSK) on examinations made available for the national Computer Studies Paper 451/1 and Paper 451/3, with the potential to enable cheating in Paper 451/2 between years 2024 and 2025 by the Kenya National Examinations Council (KNEC), thereby showing how AI can be used to compromise web-based assessments and underscoring the urgent need for immediate interventions to safeguard examination integrity through the development of AI-resistant electronic assessment systems.
10. **That**, according to a Voice of America (VOA) report, AI tools like ChatGPT pose a new threat to the integrity of Kenyan university students' work by enabling sophisticated cheating and negatively impacting academic assistance providers, raising significant concerns among professors about the originality of assignments and exams.
11. **That**, Kenya urgently needs a robust Computer Science education to prepare students for the digital era defined by the convergence of Artificial Intelligence (AI), robotics, cybersecurity, and data science, as such education will drive economic growth by creating a digitally skilled population that attracts investment, fosters local innovation, and enhances Kenya's global competitiveness; ensure national security by equipping citizens with cybersecurity skills and digital ethics essential for resilience in a data-driven world; and empower youth to solve real-world problems across sectors including agriculture, health, finance, and environmental conservation.
12. **That**, the national curriculum currently suffers from the misrepresentation of outdated Computer Studies content as "Computer Science," the complete absence of practical, hands-on Robotics education, and the exclusion of Artificial Intelligence (AI), Cybersecurity, and Data

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Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

Science from core education pathways, contrary to the objectives outlined in the Kenya National AI Strategy (2025–2030).

13. **That**, the current curriculum, though labeled as “Computer Science,” is inadequate and misrepresented, with the Grade 10 syllabus nearly replicating the legacy 8-4-4 Computer Studies syllabus and lacking both foundational and advanced concepts of modern Computer Science; the Grade 7–9 curriculum mentions robotics but provides no hands-on learning, rendering it ineffective for developing essential design, problem-solving, and engineering skills; programming exposure is limited, relying primarily on Scratch, which, while useful as an introductory tool, is insufficient without broader engagement with modern, practical programming languages and paradigms; and classifying Computer Science solely as a “technical subject” at the Junior Secondary School (JSS) level undermines its cross-disciplinary importance and scientific rigour.
14. **That**, to achieve equitable implementation of Computer Science education, urgent challenges must be addressed, including equipping teachers with modern computing and AI pedagogical skills; building a progressive, scaffolded curriculum across all levels; introducing learners to algorithmic bias, data privacy, and responsible AI use; bridging the digital divide through solar-powered in shipping containers labs and affordable devices such as Raspberry Pi; updating the CBE to include full-spectrum computer science concepts; embedding digital ethics, responsible AI, and cybersecurity in junior and secondary education; and ensuring AI tools complement rather than replace critical thinking and core computing skills.
15. **That**, the government has pledged to enhance financial support for co-curricular activities as learners transition to the Competency-Based Education (CBE) curriculum in senior secondary school next year. Education Cabinet Secretary Julius Ogamba hailed the Kenya Music Festival (KMF) as a powerful tool for nurturing creativity, fostering cultural unity, and driving the CBE agenda, while calling for greater equity and investment in the arts. He highlighted the festival's alignment with CBE's focus on creativity, imagination, and communication, and noted its role in building self-confidence, discipline, perseverance, teamwork, and collaboration. The CS stated that the ministry, together with the National Treasury, would push for increased allocations from Parliament to ensure learners are fully supported in nurturing their talents through music, drama, and other creative arts.
16. **That**, unlike other co-curricular activities such as music, drama, and sports, the Ministry of Education and the Government of Kenya have not provided the much needed financial or policy support to robotics clubs and STEM-based extracurricular programs, thus hindering equity and inclusion in STEM education.

Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

17. **That**, robotics — unlike music, drama, and sports — does not receive any structured support or funding from the Ministry of Education or the Government of Kenya despite its centrality to 21st-century innovation.
18. **That**, Robotics clubs are vital for young students, offering an engaging introduction to STEM, AI, data science, coding, and robotics, while cultivating essential hard and soft skills like teamwork and problem-solving, thus preparing them for the future workforce. These clubs foster creativity and innovation through hands-on projects. Governments should fund them as they develop a technologically skilled future generation, drive economic growth, and ensure equitable access to crucial STEM education, ultimately leading to a more competitive nation.
19. **That**, strengthening computing education is vital to Kenya's socio-economic transformation, competitiveness, and participation in the global digital economy, with the aim of embedding computer science, AI, and digital skills into all levels of education and positioning Kenya as a digital leader in Africa.
20. **That**, the petition, submitted by the Computer Science Teachers Association of Kenya (CSTA Kenya) and concerned citizens, outlines critical concerns over the low uptake of STEM subjects—particularly Computer Science—by senior school students. It proposes immediate policy interventions to align the education system with the demands of the 21st-century workforce and Kenya's digital transformation goals. We respectfully request the National Assembly to give this matter urgent consideration and facilitate deliberation through the relevant departmental committees.
21. **That**, the Kenya Science and Engineering Fair (KSEF), organized annually by the **Centre for Mathematics, Science, and Technology Education in Africa (CEMASTE)** under the Ministry of Education, provides a critical platform for students to showcase innovation, creativity, and scientific skills. However, despite its significance in promoting STEM education, the event is not fully supported with adequate financial resources, teaching materials, or logistical backing. The funding and support currently provided are insufficient to ensure that all participating schools and students can fully benefit from the fair, limiting the reach, quality, and impact of this important national initiative.
22. **That**, the Young Scientists Kenya (YSK) is a collaboration between the Ministry of Education, the Government of Ireland (through its Embassy in Kenya), and partners like BLAZE by Safaricom and the Raspberry Pi Foundation, has become a transformative platform that inspires and empowers young innovators by providing opportunities to showcase STEM solutions

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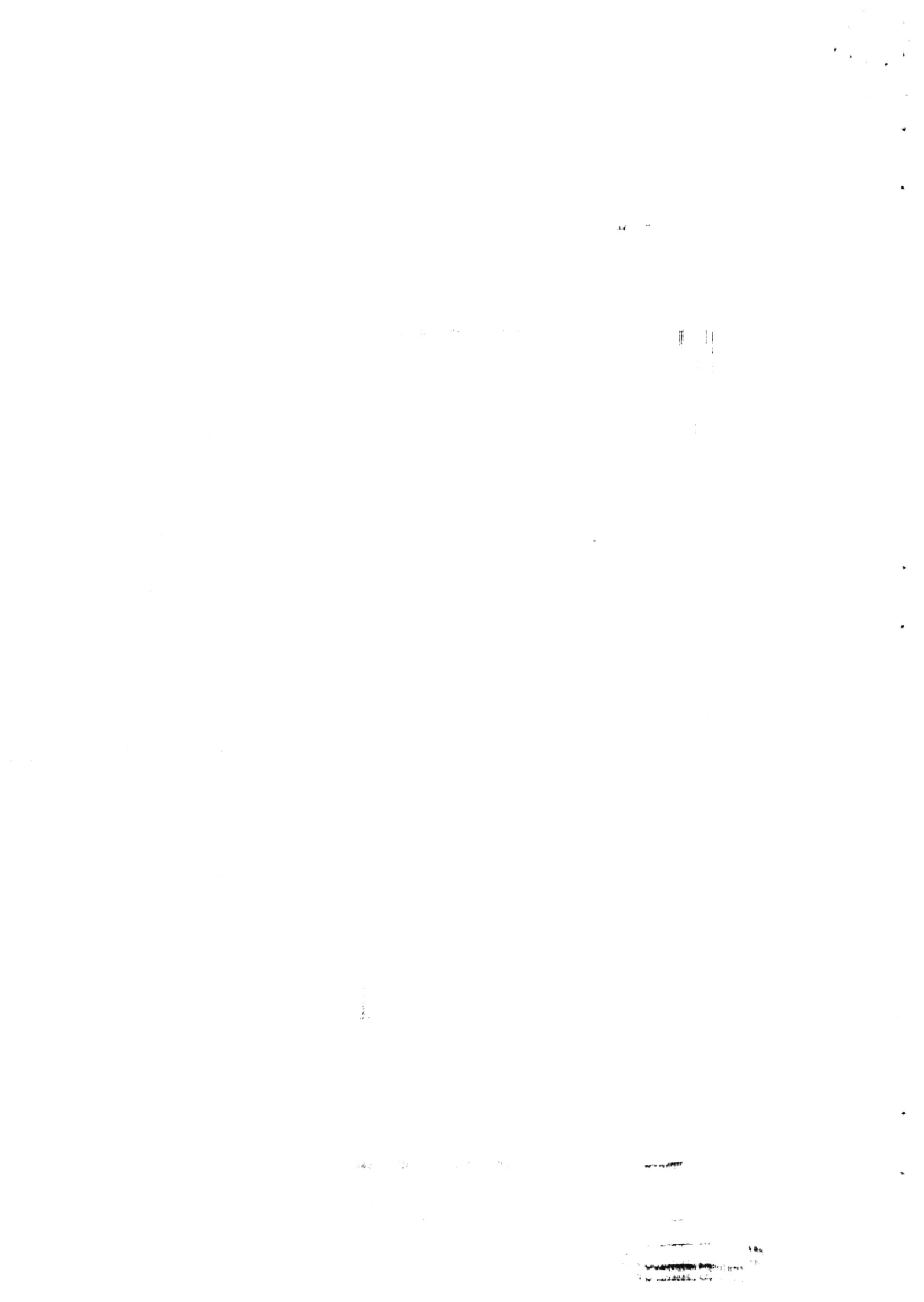
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Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

addressing real community challenges. Since 2018, it has reached over 250,000 students across all 47 counties, trained more than 850 teachers, facilitated 1,700 student-led projects, and awarded scholarships, patents, and mentorship opportunities, with winners even gaining international exposure. Its impact has been further strengthened through teacher upskilling programmes such as Experience AI, exhibitions, and entrepreneurship bootcamps that nurture students into future innovators and entrepreneurs. However, YSK faces challenges in scaling participation among rural schools due to budget constraints, low awareness, limited infrastructure, teacher shortages, and hidden participation costs, making it difficult for marginalized learners to fully engage. Despite these hurdles, YSK's successes highlight its vital role in advancing STEM education in Kenya, with deeper government policy integration, infrastructure investment, and equitable resource allocation needed to ensure inclusivity and sustainability.

23. **That**, the Google Educators Group Kenya (GEG Kenya) is a volunteer-led community of educators dedicated to promoting the effective use of Google tools in education, providing training, workshops, and resources to empower teachers and learners across Kenya. During the COVID-19 pandemic, GEG Kenya played a critical role in supporting remote learning and digital skills development. A notable member, Rosemary Bosibori Onyancha, a tech-savvy teacher from Moi Forces Academy Lanet, Nakuru, leveraged this platform to enhance her digital teaching capabilities and, in recognition of her innovative efforts in education and empowerment during the pandemic, was awarded the Africa Union Award in 2023. GEG Kenya continues to foster collaboration, professional development, and the integration of digital technologies in classrooms nationwide.
24. That the U.S. House of Representatives, through the Congressional App Challenge, has created a nationwide platform to inspire middle and high school students to explore computer science by developing apps on any topic and platform, with winners recognized at the U.S. Capitol and celebrated at the annual #HouseofCode event; established in 2013 with bipartisan support, the Challenge has grown significantly, engaging over 11,000 students and 3,600 apps in 2023, while emphasizing inclusivity by reaching underrepresented groups and beginners in coding, and showcasing real-world impact through innovative solutions like the award-winning "Eczema Ease" health app.
25. **That**, in September 2024, the Robotics Society of Kenya petitioned the National Assembly of Kenya for increased government funding and legislative support for the Kenya Coding Challenge.



Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

26. **That**, the Speaker of the National Assembly, Hon. Moses Wetang'ula's remarks affirm Parliament's commitment to creating a supportive legislative and policy environment for Kenya's digital future, while the Huawei ICT Competition stands out as more than just a contest but a strategic investment in youth, industry-ready skills, and global ICT competitiveness: the initiative highlights the value of public-private partnerships between government, industry, and academia in driving growth, even as broader concerns such as AI-driven job disruption and persistent digital skill gaps underscore the urgency for adaptability and proactive training across all sectors of society.
27. That over the past ten years, the Huawei ICT Competition has empowered thousands of Kenyan students with advanced digital skills, given them global exposure and recognition, and produced industry-ready graduates who are better aligned with workplace needs; it has created career pathways through internships and jobs, strengthened academia-industry partnerships, promoted innovation and entrepreneurship, and enhanced Kenya's ICT competitiveness; further, it has prepared youth to adapt to automation and AI disruptions, reinforced Kenya-China and global cooperation in education and technology, and established a decade-long legacy as a cornerstone of ICT excellence and a driver of national digital growth.
28. **That**, the International Telecommunication Union (ITU), a United Nations specialized agency for ICT, organizes the Robotics for Good Youth Challenge as part of its AI for Good platform, bringing together youth globally for in-person events where they design robotics projects addressing real-world challenges aligned with the Sustainable Development Goals (SDGs), with an emphasis on open-source solutions, use of recycled and locally available materials, and hands-on learning in artificial intelligence and robotics, thereby fostering innovation, sustainability, digital inclusion, and global collaboration among young people.
29. **That**, in October 2023, the Robotics Society of Kenya (RSK) called the attention of the Ministry of Education Kenya to have a national conference on the UNESCO Framework AI Guidance for Schools Toolkit: Teach AI Policy in the Kenya Education System. Despite the official digital correspondence from the Robotics Society of Kenya, the Ministry of Education has never acknowledged nor officially responded to the petition.
30. **That**, Teachers Service Commission (TSC) is the only government body responsible for teacher development according to Article 237 of the Constitution of Kenya.
31. **That**, the Kenya Institute of Curriculum Development (KICD) holds the central and official mandate for curriculum development in Kenya, its work is a collaborative effort. It functions as the coordinating and advisory body, but the entire process—from policy formulation and needs

Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

assessment to implementation and evaluation—is a collective responsibility of various stakeholders within the education sector and the wider community.

32. **That**, the Kenya Institute of Curriculum Development (KICD) announced in February 2025 that it was seeking applications for panels to review the curriculum for senior secondary schools, which is the final phase of implementing the Competency-Based Education (CBE) system. The KICD called for teachers, teacher educators, and other professionals to apply to help develop and review educational materials. There are concerns, however, that the KICD did not adequately involve the public, as required by the Kenyan Constitution, particularly regarding the development of the computer science curriculum.
33. **That**, the Ministry of Education in Kenya has released the subject and curriculum guidelines for senior secondary schools, which will be implemented starting in 2026. The updated curriculum expands the number of subjects to ten, with four compulsory subjects: Mathematics, English, Kiswahili, and Community Service Learning. Additionally, non-assessed subjects like Physical Education, ICT skills, and religious instruction are included to promote holistic development. Yet, as envisioned in the Kenya National Artificial Intelligence Strategy 2025-2030, the curriculum has refused to acknowledge the implications of artificial intelligence and robotics in education, the emergence of a correct curriculum for computer science, and not just computer studies. That, as currently constituted, the curricula for ICT and computer studies cannot help prepare Kenyan learners for the future of work as espoused by McKinsey, the World Economic Forum, and UNESCO, nor does it include actions, measures, and mitigation efforts like those taken by countries such as Rwanda, South Africa, Morocco, and Egypt, or as outlined in the Africa NEPAD report on the embracing of robotics in the school systems in Africa.
34. **That**, the Robotics Society of Kenya (RSK) actively participated and collaborated and partnered with The Otermans Institute (OI), who has launched the "OI Lead Initiative," a program aimed at training 25,000 Kenyan youths in AI literacy. This free, certified program is specifically for non-governmental organizations (NGOs) and charities that work in education across Kenya. The goal of the initiative is to help make Kenya a leader in AI literacy in Africa by providing essential AI skills to young people, especially in underserved communities. The program, which has a target of 25,000 participants, is scheduled to run from August 1 to August 31, 2025.
35. **That**, the Raspberry Pi Foundation, in partnership with multiple organizations in Kenya—including Oasis Mathare, Young Scientists Kenya (YSK), Kenya Connect, Tech Kidz Africa, STEAM Labs Africa, Futures Infinite, Frontier Counties Development Council (FCDC),

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Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

Coder\LevelUp, and Team4Tech—recently reported on the positive impact of coding clubs on young people. Released in mid-August 2025, the [report](#) found that these clubs are thriving, reaching over 42,000 youth, with 89% of surveyed mentors noting increased coding skills and confidence among participants. Using a successful "train-the-trainer" model, the Foundation has empowered 1,498 mentors, providing effective access to technology, especially in disadvantaged and marginalized areas.

36. **That**, the Robotics Society of Kenya advocates for the integration of computer science education into the national curriculum. They also work with organizations like the [Raspberry Pi](#) to organize events like the [Raspberry Pi Jam](#), a one-day event for students, teachers, and enthusiasts of robotics and AI.
37. **That**, the Robotics Society of Kenya (RSK) has a flagship project to build solar-powered computer labs in shipping containers to provide access to technology in underserved areas, and it has been recognized as a [Top 20 Finalist in the SDG Digital GameChangers Award for their Solar-Powered Computer Lab in a Shipping Container for Kenyan learners](#), under the "Planet" category. As part of the upcoming SDG Digital event which took place on 20–21 September 2024 in New York, the award honours individuals and organizations working to rescue the Global Goals through digital innovation. This remarkable achievement highlights the impact of RSK's innovative submission, acknowledged by a high-level jury of experts. The SDG Digital event, supported by the UN System, the International Telecommunications Union (ITU), and the United Nations Development Programme (UNDP), brings together leaders in youth, government, private sector, and more to advance the Global Goals through digital innovation.
38. **That**, the Robotics Society of Kenya (RSK), in partnership with the [Scratch Foundation](#), trains teachers on using Scratch programming to teach computer science in the CBE. They have held meetups in locations including Nakuru, Nairobi, and Mombasa to prepare educators. The Scratch Educators Meetups are a global initiative designed as peer-led professional learning experiences for teachers passionate about teaching with Scratch, allowing them to share ideas, create, and learn from one another. In Kenya, the Nairobi Scratch Educator Meetup is highlighted as a collaboration between the Scratch Foundation and the STEM Impact Center Kenya, while other organizations, such as RSK and the African Maths Initiative, also conduct Scratch workshops.
39. **That**, the [Kenya Science and Engineering Fair \(KSEF\)](#), a flagship national co-curricular event organized under the Ministry of Education, includes a Robotics category aimed at promoting creativity, innovation, and problem-solving among students.



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digital and AI-driven global economy, making urgent the implementation of a 21st-century Computer Science education strategy.

46. **That**, the Kenya Institute of Curriculum Development (KICD) has incorporated a Robotics section in the Grade 7–9 Computer Studies (computer science) curriculum, indicating the need for inclusive national robotics policies and broader access to tools.
47. **That**, the Robotics Society of Kenya (RSK) has just released and shared with the Kenya Institute of Curriculum Development (KICD) a proposal for a Prototype Curriculum Framework for Artificial Intelligence, Data Science, Robotics, and Cybersecurity from primary to university, as envisaged in the Kenya National Artificial Intelligence Strategy 2025-2030 and the draft proposal for the Kenya Computer Science for All Bill, 2025. The RSK has engaged in digital correspondence with the KICD within the 2024-2025 year, but the latter has not acknowledged or officially communicated in response to these efforts.
48. **That**, robotics is fundamental to AI, shaping global sectors like healthcare, agriculture, manufacturing, and transport.
49. **That**, continued exclusion of open-source robotics platforms undermines Kenya's goals in digital literacy, local manufacturing, and the development of 21st-century skills among students.
50. **That**, the robotics adoption in Kenya is gaining momentum, driven by educational reforms, youth innovation, and national digital strategies like the Digital Masterplan (2022–2032). Schools are integrating robotics through clubs and CBE-aligned curricula using kits like Micro:bit and Raspberry Pi, while innovation hubs such as Gearbox and university labs like JKUAT's Automation Lab are supporting local development and research. Despite growing interest, challenges such as high equipment costs, lack of skilled trainers, and limited infrastructure persist, especially in underserved regions. However, opportunities lie in developing low-cost local kits, integrating robotics into STEM education, promoting robotics for agriculture and disability inclusion, and establishing national policy frameworks. With coordinated support from government, academia, and industry, Kenya can position itself as a regional leader in African-centered robotics innovation.
51. **That**, the EU's potential Robotics Continental Strategy in 2025, following its AI strategy, is crucial for leveraging the AI-robotics synergy, addressing unique robotics challenges and opportunities (like innovation, safety, ethics, and workforce development), boosting Europe's global competitiveness in robotics across industries, and coordinating member state efforts for a

Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

unified and dynamic market, ultimately driving economic growth and societal benefit across the EU.

52. **That**, leading countries such as the U.S., China, and the EU are advancing robotics strategies as part of economic and technological competitiveness.

53. **That**, globally, there is a growing consensus on the need for strategic integration of robotics and AI into national policy frameworks. On Wednesday, March 27, 2025, leading U.S. robotics companies—including Tesla, Boston Dynamics, and Agility Robotics—met with lawmakers on Capitol Hill in Washington to advocate for the establishment of a national robotics strategy, a central robotics office, and dedicated funding. This historic move underscores the critical role of robotics and AI in securing national competitiveness and innovation.

54. **That**, likewise, the European Union is preparing to release a Robotics National Strategy to harmonize and support AI-powered robotics across its member states. These developments reflect the global trend toward coordinated national approaches to digital transformation and emerging technologies.

55. **That**, global precedents demonstrate the value of integrating robotics into education, with countries such as South Korea, the UAE, and China embedding robotics clubs as part of national education reforms; international frameworks like FIRST Robotics (USA) and the World Robot Olympiad (WRO) serving as models for youth engagement in robotics; and nations such as South Africa, Egypt, and Rwanda advancing school robotics through public-private partnerships and government support.

56. **That**, the State of California, USA, has implemented a comprehensive digital approach to K–12 education by adopting a wide range of digital instructional materials and resources across various subject areas, including mathematics, English language arts, science, and history-social science, through the California State Board of Education's adoption process. These materials are designed to align with state content standards and are accessible both online and offline, ensuring equitable access for all students, including those in rural areas with limited internet connectivity. Additionally, the California Open Source Textbook Project has contributed to the development of open-licensed digital textbooks, further reducing costs and increasing accessibility for students and educators.

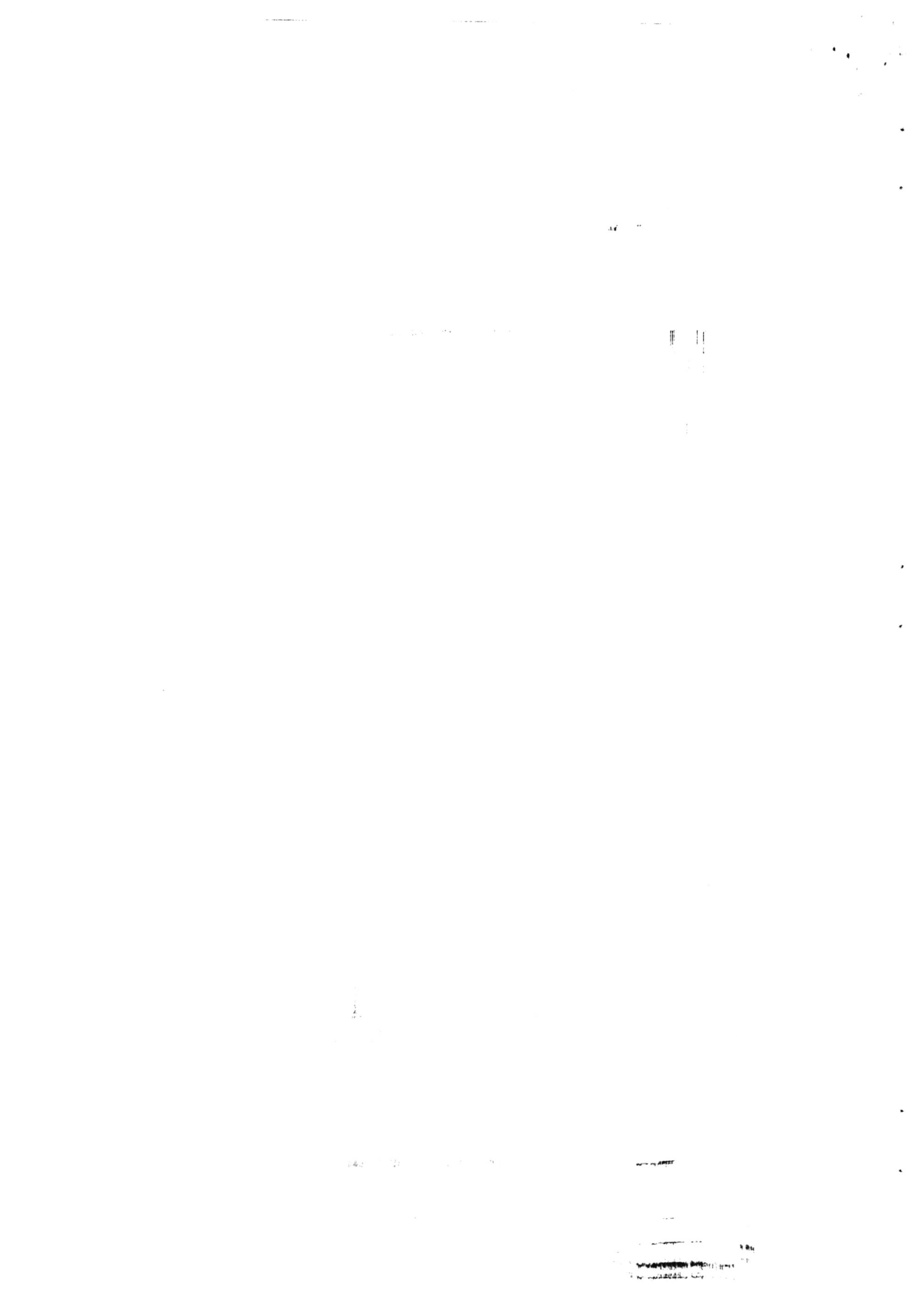
57. **That**, international and American computer science teacher associations provide global best practices, standards, and professional development frameworks, including curriculum guidelines, teacher certification pathways, training programs, and research-backed policy



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recommendations, to strengthen national computing education systems and ensure alignment with emerging technologies and the future of work.

58. **That**, the Ministry of Education has emphasized the importance of digital skills and computing education at all levels of learning in Kenya in preparing learners for the future of work.
59. **That**, teachers of computer science and related computing disciplines currently lack a recognized national professional body mandated to support their professional growth, regulate standards, and provide certification in specialized areas.
60. **That**, the Computer Science Teachers Association of Kenya (CSTA Kenya) has been established to fill this critical gap by supporting computing educators nationwide.
61. **That**, recognition of CSTA Kenya as a national professional body will ensure structured continuous professional development and certification programs for teachers in emerging fields such as Artificial Intelligence, Robotics, Data Science, and Cybersecurity.
62. **That**, it will provide a coordinated national network for computing educators to share best practices, teaching resources, and innovative pedagogies, thereby improving the quality of computing education in Kenya.
63. **That**, CSTA Kenya will also serve as a platform to facilitate partnerships with global organizations and industry leaders, enabling teacher training and student development opportunities aligned with international standards.
64. **That**, Microsoft's Windows 10 security updates are ending on October 14, 2025. This raises a number of concerns, including the risk of leaving electronic waste and the added cost to schools and institutions that will need to either upgrade to Windows 11 or pay for extended security updates.
65. **That**, AI agents are poised to revolutionize education by personalizing learning through adaptive tutoring, automated assessment, and AI-generated content, ultimately enhancing student engagement and freeing up educators' time, while in the future of work, they will automate repetitive tasks, enhance decision-making, improve efficiency, personalize customer service, streamline HR, and accelerate research, necessitating workforce reskilling to adapt to the evolving job market that will increasingly value uniquely human skills augmented by AI.



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66. **That**, open-source resources like Linux and Arduino are vital in education due to their cost-effectiveness, enhanced accessibility and customization for tailored learning, promotion of technological transparency and computational thinking, strong community support, and provision of hands-on STEM learning experiences. Linux offers a stable programming environment, while Arduino fosters practical application and innovation. Embracing open source cultivates collaboration, innovation, and digital literacy affordably and accessibly, empowering educators and learners alike.
67. **That**, vibe coding—an engaging, intuitive approach using visual or block-based tools—greatly enhances AI and robotics education within Kenya’s CBE-aligned Computer Science curriculum by making complex concepts accessible to learners of all levels. It lowers entry barriers through tools like Scratch and MakeCode, supports creative AI experimentation with platforms like Teachable Machine, and offers hands-on robotics learning via Micro:bit and LEGO EV3. Vibe coding fosters collaboration, supports inclusive learning for students with disabilities or in low-resource settings, and enables a smooth transition to advanced coding with Python and AI frameworks. This approach is suitable from primary through university levels, empowering students to build real-world tech solutions while nurturing critical 21st-century skills.
68. **That**, Anthropic CEO Dario Amodei recently said he believes AI will soon be writing 90 percent of all code. And Amazon CEO and President Andy Jassy said his company will hire fewer software engineers thanks to AI.
69. **That**, evidence certainly seems to be growing that generative AI tools can carry out many of the tasks associated with coding and programming. Commonly cited use cases include creating new code, optimizing existing code, detecting bugs, explaining code, maintaining documentation and detecting security vulnerabilities. Although quantitative research is limited at this point, one study found that programmers assisted by Microsoft’s AI coding assistant, GitHub Copilot, have been able to complete tasks 55 percent faster than those without.
70. **That**, Ethiopia and Nigeria are joining forces to develop a fleet of African-made drones capable of both civilian and military applications.
71. **That**, the UAE has become the first country to systematically integrate AI into its lawmaking process by establishing the Regulatory Intelligence Office. This AI system will analyze vast legal and public data to suggest updates, aid in drafting new laws, monitor their impact, and benchmark against international standards, aiming for increased speed, precision, clarity, and reduced costs. While AI is expected to streamline the legislative process significantly, human oversight will remain crucial to ensure fairness and context in the final legal decisions. This

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initiative reflects the UAE's broader digital transformation goals and could serve as a pioneering model for AI in governance globally.

72. **That**, the work of the Robotics Society of Kenya (RSK) on the national discourse surrounding AI and robotics has indeed been recognized and featured in key national documents. Specifically, the RSK's contributions were included in the Kenya National Artificial Intelligence Strategy 2025-2030 and the Kenya: artificial intelligence readiness assessment report - UNESCO. This highlights the significant role the RSK is playing in shaping the national conversation and policy direction for these crucial emerging technologies in Kenya.
73. **That**, on 9 July 2023, Robotics Society of Kenya published a public blog titled "Advancing STEM Education in Kenya: The Robotics Society of Kenya Calls for the Establishment of Robotics Clubs in Schools and Institutions" calling for the establishment and government funding of Robotics Clubs in schools and institutions.
74. **That**, Robotics Society of Kenya drafted the Kenya Robotics and Artificial Intelligence Society Bill, 2023, which is currently before the National Assembly's public participation committee.
75. **That**, the "Kenya Robotics and Artificial Intelligence Bill, 2023", champions the growth of AI and robotics education by establishing a framework for training, school clubs, and public awareness. This foundational support naturally encourages the integration of ethical considerations, critical thinking, and a focus on societal benefit within the curriculum, fostering subjective discussions on the responsible development and use of these technologies for Kenya's advancement.
76. **That**, on 10 March 2025, Robotics Society of Kenya released a detailed report titled Integrating Raspberry Pi into Kenya's CBC: Enhancing Computer Science, AI, Chess, and Robotics, showcasing how affordable tools can empower CBE implementation.
77. **That**, the Robotics Society of Kenya (RSK) has petitioned the National Assembly and the Ministry of Finance regarding the Finance Bill 2025, emphasizing the need to safeguard Robotics and Artificial Intelligence education, as outlined in their publication Why Kenya's Finance Bill 2025 Must Safeguard Robotics and Artificial Intelligence Education.
78. **That**, by fusing robotics, coding, AI, and sustainability, the initiatives will act as a catalyst for climate-smart education, equipping a generation of Kenyan learners and communities with the tools and mindset to innovate for climate resilience and green growth.

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79. **That**, Kenya must not be left behind. In line with global best practices and national aspirations under Vision 2030 and the Digital Superhighway pillar of the Bottom-Up Economic Transformation Agenda (BETA).

80. **That**, I submit this petition in an effort to have the National Assembly discuss, review, make recommendations, regarding the monopolization of the robotics category at the Kenya Science and Engineering Fair (KSEF) and the exclusion of affordable, open-source educational robotics platforms.

81. **That**, none of the issues raised in this petition is pending in any court of law, constitutional, or any other legal body.

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Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

Therefore, your humble **Petitioners** prays that the National Assembly:

- a) to urge the National Assembly of Kenya to provide increased government funding and legislative support for the Kenya Coding Challenge, as petitioned by the Robotics Society of Kenya in September 2024.
- b) to urge the Kenya Institute of Curriculum Development (KICD) to immediately engage stakeholders, including the the Computer Science Teachers Association of Kenya (CSTA Kenya), in co-developing a modern, inclusive, and industry-relevant computing curriculum; adopt accurate and transparent curriculum labeling by reserving the term “Computer Science” for content reflecting modern computing disciplines such as software engineering, AI, robotics, cybersecurity, data science, and embedded systems; transition from static textbooks to digital content platforms for frequent updates and integration with global tools; partner with open-source content providers, EdTech platforms, and NGOs to co-develop accessible learning materials; and ensure computing education under the CBE aligns with Pre-Technical, STEM, and ICT pathways, rather than being confined to technical streams with limited academic value.
- c) to recognize and grant national authority to the Computer Science Teachers Association of Kenya (CSTA Kenya) as a national professional body for computing educators. This would give the CSTA Kenya the mandate to support the teaching of computer science and other computing disciplines; provide continuous professional development and certification programs for teachers in areas such as AI, robotics, data science, and cybersecurity; build a national network of educators to share best practices and resources; and partner with global organizations and industry leaders to facilitate teacher training and student development.
- d) to summon the Kenya Institute of Curriculum Development (KICD) and the Ministry of Education to provide a detailed report on the implementation of AI, Robotics, Cybersecurity, and Data Science in Basic Education, in alignment with the Kenya National AI Strategy 2025–2030.
- e) to urge the National Assembly of Kenya to recognize and support robotics clubs in schools by providing funding and resources, including grants or subsidies for robotics kits, laptops, and maker equipment, ensuring equitable access for underserved and rural schools, and promoting zero-rating of educational AI and robotics software, digital learning platforms, Raspberry Pi, Micro\bit, LEGO kits, and sensors, thereby enabling learners to build, code, and operate

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robots, engage in STEM and AI-related projects that address real-world challenges, and participate in national and international competitions and innovation showcases.

- f) to urge the National Assembly to ensure that, as envisaged in the "Kenya Computer Science for All" Bill, 2025, Computer Science is implemented as either an elective or mandatory subject at all levels of the Kenyan education system, and that equitable implementation addresses critical challenges, including equipping teachers with modern computing and AI pedagogical skills; building a progressive, scaffolded curriculum across all levels; introducing learners to algorithmic bias, data privacy, and responsible AI use; bridging the digital divide through solar-powered labs and affordable devices such as Raspberry Pi; updating the CBE to include full-spectrum computer science concepts; embedding digital ethics, responsible AI, and cybersecurity in junior and secondary education; and ensuring AI tools complement rather than replace critical thinking and core computing skills.
- g) to ensure that Kenya's AI strategy and robotics policy development should inclusively engage all key stakeholders, such as the Ministry of Education, Teachers Service Commission (TSC), Ministry of ICT and Digital Economy, county governments, civil society and communities, Ministry of Health, Ministry of Agriculture, Ministry of Industrialization, Trade and Enterprise Development, and the Ministry of Roads and Transport.
- h) to track progress and publicly report STEM outcomes annually.
- i) to urge the National Assembly to adopt key interventions for safeguarding national examinations by enhancing proctoring and authentication through AI-powered tools such as facial recognition, keystroke analysis, secure browser lockdowns, and biometric logins; integrating AI detection tools like GPTZero and Turnitin AI Detection for real-time monitoring of irregular response patterns; amending the Kenya National Examinations Council (KNEC) Act to define AI-assisted cheating and its legal consequences while establishing a Cybersecurity and AI Ethics Policy for national exams and mandating the inclusion of computer science teachers and school principals in stakeholder forums; and supporting collaborative research and pilots through the formation of a National Task Force on AI-Resistant Exams involving KNEC, MoE, the Ministry of ICT, RSK, and EdTech partners, benchmarking with Google for Education's secure models, and conducting pilots with Microsoft, the Raspberry Pi Foundation, Micro\bit, and Huawei Kenya to develop secure, inclusive digital assessments.

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- j) to ensure that the Ministry of Education Kenya has a national conference on the UNESCO Framework AI Guidance for Schools Toolkit: Teach AI Policy in the Kenya Education System.
- k) to train and support teachers, leveraging CSTA Kenya alongside TSC.
- l) to recommend that the Ministry of Education and relevant partners strengthen the Senior School curriculum by positioning Computer Studies as an alternative pathway for learners while recognizing Computer Science as a distinct STEM subject. While ICT skills have been suggested for integration at all levels, the current ICT curriculum may not adequately prepare students for the evolving demands of the future workforce. By offering Computer Studies alongside ICT and elevating Computer Science as a rigorous STEM discipline, learners will gain both practical digital skills and deeper computational knowledge, ensuring they are equipped for diverse career pathways in the digital economy. This policy shift will align Kenya's education system with global best practices, foster innovation, and build a future-ready workforce.
- m) to enable and facilitate the Computer Science curriculum from Grade 10-12, it should not be categorized as a technical subject, but rather separately as a STEM subject.
- n) to support the implementation of the Kenya Computer Science for All Bill, 2025, and provide continuous professional development and certification programs for teachers in areas like AI, robotics, data science, and cybersecurity, as contained in the advisory and envisioned in the Kenya National Artificial Intelligence Strategy 2025-2030.
- o) to develop solar-powered ICT labs, specifically a solar-powered computer lab in a shipping container for Kenyan learners.
- p) to provide equitable access to labs, digital tools, and learning resources.
- q) to investigate and audit the procurement practices and decision-making processes behind the exclusive use of LEGO robotics platforms in KSEF.
- r) to direct the Ministry of Education and other relevant agencies to ensure inclusive participation in the Robotics category by allowing open-source platforms such as Arduino, Raspberry Pi, and BBC Micro:bit.

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Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

- s) to recommend the provision of government support and funding for robotics and STEM clubs in all schools, similar to other co-curricular activities like drama and sports.
- t) to establish a central National Robotics Coordination Office in Nairobi by the Kenyan Parliament is crucial for strategic national coordination, educational advancement, economic growth, addressing societal challenges, developing policy frameworks, fostering international collaboration, promoting local manufacturing, and ensuring ethical and inclusive development of robotics, ultimately harnessing its transformative potential for Kenya's progress across various sectors.
- u) to promote teacher upskilling in AI and robotics professional development: Partner with teacher training institutions to offer continuous professional development in eco-robotics, green engineering, and sustainability pedagogy.
- v) to have policy advocacy: Work with KICD, TSC, and the Ministry of Education to integrate robotics and artificial intelligence in education competencies into national teacher training frameworks.
- w) to enact a policy frameworks that promote the use of affordable, locally manufactured, and open-source educational technologies to support the Competency-Based Education (CBE);
- x) to ensure that robotics education in Kenya is equitable, locally relevant, and future-ready.
- y) in line with the Public Petitions Committee's prior consideration on 18 June 2023 during the Kenya Robotics and Artificial Intelligence Society Bill deliberations, we respectfully petition the National Assembly to grant national authority to the Robotics Society of Kenya (RSK).
- z) to urge the National Assembly and the Ministry of Finance to safeguard Robotics and Artificial Intelligence education in the Finance Bill 2025, as petitioned by the Robotics Society of Kenya (RSK).
- aa) to offer Tax relief for AI/robotics startups building local learning solutions" means giving financial and tax-related incentives to Kenyan startups that are developing educational technologies, tools, or platforms related to artificial intelligence (AI) and robotics, especially those serving local schools, students, and communities.


Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya

bb) to urge the National Assembly of Kenya to adopt and promote the use of open-source educational materials and resources in schools to lower learning costs, expand access to quality content, and foster innovation in teaching and learning.

cc) to recommend that the Computer Science curriculum shall be reviewed every three years to ensure relevance, alignment with global trends, and responsiveness to emerging technologies and the future of work.

dd) to urge the National Assembly of Kenya to adopt and integrate digital instructional materials, open educational resources, and interactive learning tools in schools, following the example of the State of California, USA, in order to reduce reliance on paperwork, lower costs, increase accessibility, and enhance the quality of teaching and learning in computer science and other subjects.

And your **PETITIONERS** will ever pray.

Name	Full address	National ID/Passport no	Phone No.	Signature
Fred Ondieki Sagwe	Sajiloni Girls Secondary School, P.O. Box 459-01100, Kajiado	BK117283	071594984	

Dated this 18th day of August 2025

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Petition for Urgent Policy and Legislative Interventions to Reverse the Decline in STEM Uptake and Strengthen Computer Science Education in Kenya





MINUTES OF THE 15TH SITTING OF THE PUBLIC PETITIONS COMMITTEE HELD ON TUESDAY, 17TH MARCH, 2026 IN FRANGAPINI CONFERENCE ROOM, SERENA HOTEL, MOMBASA COUNTY AT 10.00 A.M.

PRESENT

- | | | |
|---|---|-------------------------|
| 1. Hon. Eric Muchangi Karemba, CBS M.P. | - | Chairperson |
| 2. Hon. Janet Jepkemboi Sitienei, CBS, M.P. | - | Vice-Chairperson |
| 3. Hon. Joshua Chepyegon Kandie, M.P. | | |
| 4. Hon. Maisori Marwa Kitayama, M.P. | | |
| 5. Hon. Edith Vethi Nyenze, M.P. | | |
| 6. Hon. (Eng.) Bernard Nebart Muriuki, M.P. | | |
| 7. Peter Mbogho Shake, M.P. | | |
| 8. Hon. Suzanne Ndunge Kiamba, M.P. | | |
| 9. Hon. Paul Biego Kibichiy, M.P. | | |
| 10. Hon. Peter Irungu Kihungi, M.P. | | |
| 11. Hon. Sloya Clement Logova, M.P. | | |

APOLOGIES

1. Hon. Beatrice Kadeveresia Elachi, CBS, M.P.
2. Hon. Patrick Makau King'ola, M.P.
3. Hon. Patrick Ntwiga Munene, CBS, M.P.
4. Hon. John Bwire Okano, M.P.

IN-ATTENDANCE

SECRETARIAT

- | | | |
|--------------------------|---|-------------------------------|
| 1. Mr. Victor Weke | - | Principal Clerk Assistant II |
| 2. Ms. Miriam Modo | - | Clerk Assistant I |
| 3. Mr. Bernard Toroitich | - | Clerk Assistant III |
| 4. Ms. Kafuyai Wamae | - | Clerk Assistant III |
| 5. Mr. Clinton Sindiga | - | Legal Counsel II |
| 6. Ms. Nancy Akinyi | - | Research Officer III |
| 7. Mr. Arkan Mumin | - | Research Officer III |
| 8. Mr. Collins Mahamba | - | Audio Officer |
| 9. Mr. Calvin Karungo | - | Media Relations Officer III |
| 10. Ms. Felistus Muiya | - | Public Communications Officer |
| 11. Mr. Paul Shana | - | Serjeant at Arm |

MIN./PPC/2026/079:

PRELIMINARIES

The Chairperson called the meeting to order at 11:30 am and said a word of prayer.

MIN./PPC/2026/080:

ADOPTION OF AGENDA

The proposed agenda was adopted having been proposed by Hon. Eng Nerbart Muriuki, M.P and seconded by, Hon. Peter Irungu Kihungi, M.P

AGENDA

1. Prayer and Preliminaries
2. Adoption of the Agenda
3. Confirmation of previous Minutes
4. Matters Arising
5. **Consideration and adoption of the following Public Petition Reports:-**
 - i. **P/No.4/2023 regarding delayed adjudication and settlement of squatters on Macalder Mines Ltd. Land by Hon. Tom Mboya Odege, M.P;**
 - ii. **P/No.59 /2023 regarding Settlement of Ontulili Mount Kenya Forest Squatters by Mr. Patrick and Mr. Robert Wanjau;**
 - iii. **P/No.14/2025 regarding the proposal to amend the Consumer Protection Act to provide for the *In Duplum* Rule by Mr. Allen Waiyaki, EBS, SC, C.Arb; and**
 - iv. **P/No.19/2025 regarding policy and legislative interventions to reverse the decline in uptake of STEM subjects in the country by Computer Science Teachers Association of Kenya.**
6. Any Other Business
7. Adjournment.

MIN./PPC/2026/081: CONFIRMATION OF MINUTES

This agenda item was deferred to the next sitting.

MIN./PPC/2026/082: CONSIDERATION AND ADOPTION OF PUBLIC PETITIONS

1. **P/No.4/2023 regarding delayed adjudication and settlement of squatters on Macalder Mines Ltd. Land by Hon. Tom Mboya Odege, M.P**

The Committee recommended that the CS Ministry of Environment and the County Government of Migori proceed to have the said title subdivided to demarcate the forested area and to give the Kenya Forest Service its own title and the remaining residents of Migori County their own titles within six months on tabling of this report and have it registered by the Ministry of Lands.
2. **P/No.59 /2023 regarding Settlement of Ontulili Mount Kenya Forest Squatters by Mr. Patrick and Mr. Robert Wanjau**

The Committee considered the draft report and it recommended that the Land Settlement Fund Boards of Trustees identifies and acquires appropriate land for the resettlement of verified claimants and that the genuine squatters are identified by the Ministry of Interior.
3. **P/No.14/2025 regarding the proposal to amend the Consumer Protection Act to provide for the *In Duplum* Rule by Mr. Allen Waiyaki, EBS, SC, C.Arb ;**

The Committee considered the draft report and recommended that the departmental committee on Finance and National Planning amends the Consumer Protection Act to entrench the *In Duplum* rule.
4. **P/No.19/2025 regarding policy and legislative interventions to reverse the decline in uptake of STEM subjects in the country by computer science teachers association of Kenya.**

The Committee considered the draft report and recommended that the Ministry of Education in collaboration with the National Treasury, Kenya Institute of Curriculum Development and the Centre for Mathematics, Science and Technology Education in Africa strengthens policy coordination and resource allocation towards the expansion of STEM education programmes, including infrastructure, digital learning resources and teacher capacity development particularly in underserved and marginalized areas.

Adoption

The Committee unanimously adopted the following reports having been proposed by Hon. Paul Biego, M.P and seconded by Hon. Peter Irungu Kihungi, M.P:

- a) P/No.4/2023 regarding delayed adjudication and settlement of squatters on Macalder Mines Ltd. Land by Hon. Tom Mboya Odege, M.P;
- b) P/No.14/2025 regarding the proposal to amend the Consumer Protection Act to provide for the *In Duplum* Rule by Mr. Allen Waiyak, EBS, SC, C.Arb; and
- c) P/No.19/2025 regarding policy and legislative interventions to reverse the decline in uptake of STEM subjects in the country by Computer Science Teachers Association of Kenya.

Concerning, P/No.59/2023 regarding settlement of Ontulili Mount Kenya Forest Squatters by Mr. Patrick and Mr. Robert Wanjau, the committee did not adopt this report. It awaits further clarifications from the Estate of Angaine.

MIN./PPC/2026/083: ADJOURNMENT

There being no other business, the meeting was adjourned at 2:00 p.m.

Sign: Date

HON. MUCHANGI KAREMBA, CBS, M.P.
CHAIRPERSON, PUBLIC PETITIONS COMMITTEE

The committee will also be reviewing the following information regarding the proposed program in order to determine if it meets the criteria for a program of continuing education. The information to be reviewed includes the following:

- 1. The program is being presented by a qualified individual.
- 2. The program is being presented by a qualified individual.
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- 10. The program is being presented by a qualified individual.

MINUTE REPORT

The following information was presented at the meeting:

CHAIRPERSON: PETER B. ...
HON. MICHAEL ...
Date: ...

**MINUTES OF THE 10TH SITTING OF THE PUBLIC PETITIONS COMMITTEE
HELD ON WEDNESDAY, 4TH MARCH, 2026 IN COMMITTEE ROOM ON THE
5TH FLOOR, CONTINENTAL HOUSE, PARLIAMENT BUILDINGS AT 3.00
P.M.**

PRESENT

- | | | |
|---|---|-------------------------|
| 1. Hon. Eric Muchangi Karemba, CBS M.P. | - | Chairperson |
| 2. Hon. Janet Jepkemboi Sitienei, CBS, M.P. | - | Vice-Chairperson |
| 3. Hon. (Eng.) Bernard Nebart Muriuki, M.P. | | |
| 4. Hon. Joshua Chepyegon Kandie, M.P. | | |
| 5. Hon. Paul Biego Kibichiy, M.P | | |

APOLOGIES

1. Hon. Patrick Makau King'ola, M.P.
2. Hon. Patrick Ntwiga Munene, CBS, M.P.
3. Hon. Edith Vethi Nyenze, M.P.
4. Hon. Peter Irungu Kihungi, M.P.
5. Hon. Beatrice Kadeveresia Elachi, CBS, M.P.
6. Hon. Suzanne Ndunge Kiamba, M.P.
7. Hon. Peter Mbogho Shake, M.P.
8. Hon. John Bwire Okano, M.P.
9. Hon. Maisori Marwa Kitayama, M.P.
10. Hon. Sloya Clement Logova, M.P.

IN-ATTENDANCE

SECRETARIAT

- | | | |
|--------------------------|---|------------------------------|
| 1. Mr. Victor Weke | - | Principal Clerk Assistant II |
| 2. Mr. Bernard Toroitich | - | Clerk Assistant III |
| 3. Ms. Kafuyai Wamae | - | Clerk Assistant III |
| 4. Mr. Clinton Sindiga | - | Legal Counsel II |
| 5. Ms. Nancy Akinyi | - | Research Officer III |
| 6. Mr. Collins Mahamba | - | Audio Officer |
| 7. Mr. Calvin Karung'o | - | Media Relations Officer |

COMPUTER SCIENCE TEACHERS ASSOCIATION

- | | | |
|-----------------------|---|--|
| 1. Mr. Maurice Aketch | - | Deputy Principal, Makini School |
| 2. Mr. Fred Ondieki | - | Chairperson CSTA Kenya |
| 3. Ms. Martha Awuor | - | Stem Pathway Head, Makini School |
| 4. Mr. Geoffrey Maoga | - | State House School, Board of Management |
| 5. Mr. Tim Mutai | - | Computer Studies Lecturer, Strathmore School |
| 6. Mr. Kelvin Gitau | - | Education Ambassador, TME Education |

COMPUTER SCIENCE TEACHERS ASSOCIATION

- | | | |
|-------------------------|---|-----------------|
| 1. Mr. Joseph Kisingu | - | Chairman |
| 2. Mr. Japheth Lendi | - | Secretary |
| 3. Hon. Dominic Mwamisi | - | MCA, Mutha Ward |
| 4. Mr. Ngei Mbithi | - | Member |

5. Ms. Roseline Makena - Office Assistant
6. Mr. Jonathan Mothangya - Member
7. Mr. Dancan Kwuku - Member
8. Mr. Fredrick Musyoka - Member
9. Mr. Meshak Mbunda - Member

MIN./PPC/2026/051: PRELIMINARIES

The Chairperson called the meeting to order at 3:10 pm, followed by a word of prayer by Hon. (Eng.) Bernard Nebart Muriuki, M.P.

MIN./PPC/2026/052: ADOPTION OF AGENDA

The proposed agenda was adopted having been proposed by Hon. (Eng.) Bernard Nebart Muriuki, M.P and seconded by, Hon. Peter Irungu Kihungi, M.P.

AGENDA

1. Prayer and Preliminaries
2. Adoption of the Agenda
3. Confirmation of previous Minutes
4. Matters Arising
5. **Meeting with the Computer Science Teachers Association of Kenya on a Public Petition regarding Policy and Legislative interventions to reverse the decline in the uptake of Science, Technology and Engineering and Mathematics subjects in the country; and**
6. **Meeting with the residents of Kitui South Constituency on a Public Petition regarding encroachment of community land by the Kenya Wildlife Service in Kitui County**
7. Any Other Business
8. Adjournment and date for the next Sitting

MIN./PPC/2026/053: CONFIRMATION OF MINUTES

This agenda item was deferred to the next sitting.

MIN./PPC/2026/054: MEETING WITH THE COMPUTER SCIENCE TEACHERS ASSOCIATION OF KENYA REGARDING PUBLIC PETITION ON POLICY AND LEGISLATIVE INTERVENTIONS TO REVERSE THE DECLINE IN THE UPTAKE OF SCIENCE, TECHNOLOGY & ENGINEERING AND MATHEMATICS SUBJECTS IN THE COUNTRY

The Petitioner, Mr. Fred Ondieki, appeared before the Committee alongside members of the Computer Science Teachers Association and submitted as follows -

- a) The petitioner noted a decline in student participation in STEM (Science, Technology, Engineering, and Mathematics) at a critical time marked by the rapid rise of Artificial Intelligence (AI). He warned that, without timely intervention, the nation risks falling behind in global competitiveness, innovation, and its ability to thrive in the Fourth Industrial Revolution.
- b) He nevertheless commended the Teachers Service Commission (TSC) for its plan to prioritize STEM subject teachers during the scheduled recruitment of 24,000 intern teachers for junior secondary schools. Further, the petitioner acknowledged the introduction of coding into the school curriculum in 2022, utilizing platforms such as Scratch programming language and Python programming language within the Competency-Based Education (CBE) framework.
- c) However, he raised concerns that reliance on a single introductory tool is insufficient to prepare students for the complexities of contemporary programming and emerging fields such as Artificial Intelligence, Cybersecurity, and Data Science. Additionally, the robotics component in the Grade 7-9 curriculum currently lacks substantive hands-on learning opportunities, which limits its effectiveness. The initiative also faces significant challenges, including a shortage of trained teachers, inadequate infrastructure, and high resource costs.
- d) The petitioner further observed that, unlike extracurricular activities such as music, drama, and sports, STEM activities particularly robotics lack formal financial and policy support, which could result in unequal access, especially among marginalized communities. He added that this issue is exacerbated by the policy governing the Kenya Science and Engineering Fair (KSEF), which mandates the use of proprietary LEGO robotics kits. The high cost of these kits excludes more affordable, open-source alternatives such as Arduino micro-controller platform, Raspberry Pi Pico, and BBC micro:bit. According to the petitioner, this exclusivity fosters elitism, restricts participation, and undermines Kenya's potential to cultivate a locally relevant and scalable robotics culture.
- e) He stated that these challenges have contributed to a persistent digital divide, limiting the reach and impact of STEM programs, particularly in rural areas.

Petitioners Prayers

The Petitioners prayed that the Committee -

- a) Engages with the Ministry of Education to establish a national policy and funding frameworks for STEM and robotics; and
- b) Directs the Kenya Institute of Curriculum Development to incorporate hands on learning components in Artificial Intelligence, robotics, data science and cybersecurity within the curriculum.

Committee Concerns

- a) There exist common challenges around various schools nationwide. These are: inadequate, laboratories in public schools, shortage of STEM teachers and insufficient funding in classrooms.
- b) The petitioners wrote to KICD on open source curriculum however, KICD has not made any engagement.
- c) Artificial Intelligence has not been adopted despite it being used worldwide. The petitioner emphasised on the need of updating the tools used in STEM subjects. The current curriculum is that of the year 2000 and it has not been updated despite the society advancing in technology.

Committee Observations

The Committee observed as follows: -

THAT-

1. Computer simulations need to be used as a training aid for children.
2. The petitioners have not done a comprehensive data analysis in all the 47 counties that indicate there is a low uptake of STEM subjects in schools.
3. The Ministry of Education has not adopted the use of AI in schools.

Way forward

The Committee resolved -

1. To engage;
 - a) The Ministry of Education
 - b) The Kenya Institute of Curriculum Development

MIN./PPC/2026/055:

MEETING WITH THE RESIDENCE OF KITUI SOUTH CONSTITUENCY REGARDING PUBLIC PETITION ON ENCROACHMENT OF COMMUNITY LAND BY THE KENYA WILDLIFE SERVICE

Mr. Mutuku Kising'u, appeared before the Committee alongside members of the Mutha Petitioners Committee and submitted as follows—

- a) That the residents are ancestral owners and customary occupants of land adjacent to and surrounding the wildlife conservation zones in Kitui County. For generations, they have exercised customary rights over grazing land, water points, settlement areas, cultural sites, and community-managed resources, while coexisting with conservation agencies.
- b) He alleged that, without proper consultation, consent, public participation, or compensation as required under the Constitution and the Community Land Act, the Kenya Wildlife Service (KWS) has encroached upon and irregularly expanded into community land in multiple locations within Kitui South.

- c) He further stated that the alleged encroachment has resulted in displacement, loss of access to grazing fields, disruption of farming activities, and restriction of movement, thereby undermining the socio-economic rights of the affected residents, who are predominantly farmers.
- d) The petitioner also indicated that KWS has demarcated new areas as wildlife territory without following lawful procedures for compulsory acquisition, surveying, boundary variation, or gazette, as required under the Constitution and relevant land laws. According to him, these actions have intensified and further increased human-wildlife conflict in the affected areas.
- e) He stated that attempts by the community to obtain clarification from the Kenya Wildlife Service, the Ministry of Tourism and Wildlife, and the County Government of Kitui, as well as other relevant government offices, have not yielded clear boundary maps, legal documentation, or justification for the alleged expansions.

Petitioners Prayers

The Petitioners prayed that the Committee -

- a) Undertakes a thorough investigation into the alleged irregular and unlawful expansion of Kenya Wildlife Service land boundaries in Kitui South Constituency;
- b) Engages KWS and the County Government of Kitui to avail official maps, survey documents, gazette notices and legal instruments supporting any land acquisition or boundary changes undertaken;
- c) Directs the Ministry of Lands, the Survey of Kenya, and the National Land Commission to conduct a transparent boundary verification exercise in line with public participation from the community;
- d) Ensures that any land irregularly taken from the community is restored and that unlawful boundary markers are removed; and
- e) Makes any other recommendations or takes any actions it deems appropriate to address the plight of the Petitioners.

Committee Concerns

- i. On the inquiry regarding land allegedly irregularly taken from the community, the petitioner responded that there exists a gazette notice published in 1979 stating that the Kenya Wildlife Service (KWS) was allocated 1,133 square kilometres of land. However, KWS maintains that its mandated parcels comprise 1,833 square kilometres. The residents acknowledge the 1,133 square kilometres as land allocated to KWS. They contend, however, that the additional 700 square kilometres belong to the community, and that this land currently contains schools and residential homes
- ii. When asked whether the residents were aware of the 1979 gazette, the petitioner responded that the residents were not aware of the gazette at the time. He stated that in 1984, KWS began gradually and irregularly acquiring the additional 700

square kilometres, and it was during this period that the gazette notice came to the residents' attention. Furthermore, maps available at the Ministry of Lands indicate that KWS holds 1,133 square kilometres of the land, and not the 1,833 square kilometres as alleged by KWS.

Committee Observations

The Committee observed as follows: -

THAT-

1. The 1979 Gazette Notice does not give the exact size of the land but it provides for a boundary plan.
2. The residents had donated land for the schools which are in the 700 square kilometers. The schools were registered and had teachers dispatched by the government and they are currently closed due to the irregular acquisition by KWS.
3. The area in conflict was surveyed however, the report from the surveyor is still yet to be received by the residents.

Committee Resolution

The Committee resolved -

1. To engage;
 - a) The Ministry of Lands and Physical Planning;
 - b) The Kenya Wildlife Service; and
 - c) Institution of Surveyors of Kenya.
2. To conduct a site visit to ascertain the status of the KWS and the community land.

MIN./PPC/2026/056:

ADJOURNMENT AND DATE OF NEXT MEETING

There being no other business, the meeting was adjourned at 4:30 p.m. Next meeting will be held on Thursday, 5th March, 2026 at the same venue.

Sign:.....

Date

HON. MUCHANGI KAREMBA, CBS, M.P.

CHAIRPERSON, PUBLIC PETITIONS COMMITTEE



REPUBLIC OF KENYA
THE NATIONAL ASSEMBLY
THIRTEENTH PARLIAMENT (FOURTH SESSION)

CONVEYANCE OF PUBLIC PETITION

(No. 19 of 2025)

REGARDING POLICY AND LEGISLATIVE INTERVENTIONS TO
REVERSE THE DECLINE IN UPTAKE OF STEM AND THE NEED TO
STRENGTHEN COMPUTER SCIENCE EDUCATION IN THE COUNTRY

- Honourable Members**, Article 119 of the Constitution accords any person the right to petition Parliament to consider any matter within its authority. Further, Standing Order 225(2)(b) requires the Speaker to report to the House any Petition other than those presented by a Member.
- In this regard, **Honourable Members**, I wish to report to the House that my office has received a petition from the Computer Science Teachers Association of Kenya, a national professional body representing computing educators. The association is dedicated to ensuring that educators are fully equipped to train the next generation of technology innovators, in alignment with the country's national digital master plan and strategic objectives.
- The Petitioner highlights a concerning decline in student participation in STEM (Science, Technology, Engineering, and Mathematics) at a critical juncture marked by the rise of Artificial Intelligence (AI). Without timely intervention, the nation risks falling behind in global competitiveness, innovation, and its ability to thrive in the Fourth Industrial Revolution.

4. Honourable Members, the Petitioner commends the Teachers Service Commission (TSC) for its plan to prioritize STEM subject teachers during the scheduled recruitment of 24,000 intern teachers for junior secondary schools. Further, the Petitioner acknowledges the introduction of coding into the school curriculum in 2022, utilising platforms such as *Scratch* and *Python* within the Competency-Based Education (CBE).

5. Honourable Members, the Petitioner however raises concerns that dependence on a single introductory tool falls short of preparing students for the complexities of contemporary programming and emerging fields such as AI, Cybersecurity, and Data Science.

In addition, the robotics component in the Grade 7-9 curriculum currently lacks substantive hands-on learning opportunities, limiting its effectiveness. The initiative faces significant challenges, including a shortage of trained teachers, inadequate infrastructure, and high resource costs.

6. Honourable Members, the petitioner observes that unlike extracurricular activities such as music, drama, and sports, STEM activities, particularly robotics, the lack of formal financial and policy support, will result in unequal access, especially among marginalized communities.

This issue is exacerbated by the Kenya Science and Engineering Fair (KSEF) policy, which mandates the use of proprietary *LEGO* robotics kits. The high costs of these kits exclude affordable, open-source alternatives like *Arduino*, *Raspberry Pi Pico*, and *BBC Micro:bit*. This exclusivity fosters elitism, restricts participation, and hinders Kenya's potential to cultivate a locally relevant and scalable robotics culture.

7. The petitioner concludes by stating that these challenges have contributed to a persistent digital divide, limiting the reach and impact of STEM programs, particularly in rural areas.

- 8. Honourable Members,** the Petitioners prays that the National Assembly, through the Public Petitions Committee engages the Ministry of Education to establish a National Policy and Funding Framework for STEM and Robotics and direct the Kenya Institute of Curriculum Development (KICD) to incorporate hands-on learning components in AI, Robotics, Data Science, and Cybersecurity within the curriculum.
- 9. Honourable Members,** having established that the matter raised in the Petition is well within the authority of this House, I hereby commit the Petition to the Public Petitions Committee for consideration. The Committee is required to consider the Petition and report its findings to the House and to the Petitioner in accordance with Standing Order 227(2).

I thank you.



THE HON. GLADYS J. BOSS, MGH, MP
DEPUTY SPEAKER OF THE NATIONAL ASSEMBLY

Date 8/10/2025



**HONOURABLE CHAIRPERSON,
MEMBERS OF THE PUBLIC PETITIONS COMMITTEE,**

1. PRELIMINARY STATEMENT

1.1. The Centre for Mathematics, Science and Technology Education in Africa (CEMASTEА) hereby makes this written submission through the office of the Clerk of the National Assembly to the concerns raised in Petition No. 19 of 2025, in regards to Policy and Legislative Interventions to Reverse the Decline in Uptake of STEM and Strengthen Computer Science Education.

2. ESTABLISHMENT AND MANDATE OF CEMASTEА

- 2.1 CEMASTEА traces its establishment to the Strengthening Mathematics and Science in Secondary Education (SMASSE) Project. SMASSE started in 1998 as a pilot project jointly implemented by the Ministry of Education and the Japan International Cooperation Agency (JICA). The projects' purpose was to improve classroom practices of mathematics and science teachers, while the overall goal was to upgrade the capabilities of young Kenyans in mathematics and science.
- 2.2 In 2005, Sessional Paper No. 1: A Policy Framework for Education, Training, and Research authorised the establishment of CEMASTEА as a fully-fledged institution for in-service education and training (INSET) for Science, Technology and Mathematics teachers. Consequently, CEMASTEА programmes were captured in the Kenya Education Sector Support Programme (KESSP, 2005-2010) as Investment Programme No. 17.
- 2.3 CEMASTEА was established as a body corporate under **Legal Notice No. 96 of 2006**. In exercise of the powers conferred by *section 10 of the Education Act (Cap 211)*- now repealed by the *Basic Education Act 2013*.
- 2.4. CEMASTEА's core mandate is to: Develop capacity in STEM education through training of curriculum implementers and research.
- 2.4.1. The functions of CEMASTEА are as follows:
- i. Conduct Continuous Professional Development (CPD) programmes for curriculum implementers.
 - ii. Develop and disseminate innovative teaching and learning materials in STEM subjects;
 - iii. Promote the use of Information and Communication Technology in education;

- iv. Serve as a regional centre of excellence in mathematics and science education.

3. Written Submissions on Concerns Raised that are Specific to CEMASTEА

3.1. Issue No 3: The decline in student participation in STEM as referenced in Material Concern No. 4 of the petition

3.1.1. CEMASTEА wishes to bring to the committees' attention the assertion that Kenya is experiencing low student enrollment as in STEM as a result of inadequate facilities, gender disparities, and an overly theoretical curriculum does not reflect current national data nor the reforms being implemented under the Competency Based Education (CBE) as stipulated below:

- I. The Basic Education Curriculum Framework (BECF, 2017) envisioned that at least 60% of senior school learners would pursue the STEM pathway. This informed national planning, including the design of the senior school structure and the implementation of the pathway-based progression. According to data from the Kenya Education Management Information System (KEMIS), 50.5% of learners transiting to senior school in 2026 have opted for the STEM pathway. These numbers are expected to rise in the subsequent years as interventions continue to be implemented by relevant players. This should demonstrate a steady rise in learner interest and participation in STEM-related subjects.
- II. According to the KPSEA 2023 Report, 90.59% of Grade 6 learners in Mathematics and 77% in Science and Technology achieved performance levels ranging from Approaching Expectations to Exceeding Expectations. This strong performance indicates that learners are already demonstrating positive dispositions toward STEM which are reflected in their ability to meet or closely approach expected competency levels. The trend remained consistent in 2024, where 77.6% of learners in Mathematics and 77% in Science similarly demonstrated acquisition or near acquisition of the expected competencies. This continuity across years suggests that learner motivation and positive attitudes toward STEM subjects are stable and are translating into sustained performance. *See annexure*

- III. In view of the trend improving, the Cabinet Secretary for Education while releasing the 2023 Kenya Certificate of Secondary Education results, as reported by the Kenya News Agency, (https://www.kenyanews.go.ke/cs-machogu-releases-2023-kcse-results/?utm_source=chatgpt.com), noted that 12 of the 30 subjects offered in 2023 KCSE recorded notable improvement, including key STEM and STEM-adjacent areas such as Mathematics, Biology, Chemistry, Building Construction, Electricity, and Biology for the Blind. While in 2024, (https://nairoBILEO.co.ke/news/article/18733/breakdown-of-grades-scored-by-kcse-2024-candidates?utm_source=chatgpt.com) 17 subjects recorded a similar significant improvement and these included mathematics (alternative A and B), Biology, Physics, Chemistry and General Science.
- IV. These improvements in STEM subjects, alongside gains in other subjects, point to a broader pattern of strengthened learner engagement and motivation. Collectively, these correlations suggest that Kenyan learners are developing and sustaining positive attitudes toward STEM disciplines, with their year-on-year performance directly affirming their growing participation and engagement.
- V. On the issue stating that the curriculum remains overly theoretical is inconsistent with the ongoing shift to CBE. CBE focuses on what learners *can do* rather than what they merely *know*. CBE centres on the practical demonstration of skills, attitudes, and knowledge in real-life contexts. Its learning outcomes are action-oriented, requiring learners to apply concepts through tasks, projects, problem-solving activities, and performance-based assessments. The curriculum deliberately integrates authentic learning experiences, such as project-based learning, inquiry, experiments, community engagement, and the use of locally available materials to anchor learning in real situations. Assessment in CBE is also practical, emphasising continuous observation, portfolios, demonstrations, and real-world tasks rather than written tests alone.
- VI. Under the Senior School framework, all learners are required to pursue one of three pathways: STEM, Social Sciences, or Arts and Sports Science, each grounded in practical, project-based, and problem-solving pedagogies. Mathematics has also been presented as either Core Mathematics (STEM pathway) or Essential Mathematics (Social

Sciences and Arts pathways), ensuring universal numeracy and enhancing the relevance of STEM across pathways.

- VII. With regard to gender disparities, national examination data reflect near gender parity in overall candidature, with a few gaps now arising primarily in subject selection. To address this, the Government and partners such as KNATCOM-UNESCO have instituted deliberate interventions, including Girls' STEM-ICT Camps of Excellence and gender-responsive teacher mentorship initiatives aimed at dismantling stereotypes and supporting retention of girls in STEM.

<https://unesco.go.ke/knatcom-hosts-a-girl-student-stem-ict-camp-of-excellence/>

3.1.2. CEMASTEAs Programmes that promote STEM

CEMASTEAs, pursuant to its mandate, undertakes structured interventions that directly respond to the concerns raised. These interventions focus on upskilling, and continuous capacity development of curriculum implementers, and implements programs that inspire learners in STEM education. CEMASTEAs thereby strengthens the quality, practicality, and attractiveness of STEM education as follows:

I. Retooling and Continuous Capacity Development of curriculum implementers

a). To ensure the realization of Government policy of 60% transition to the STEM pathway, CEMASTEAs conducts capacity building programmes that targets an annual average of 25,000 curriculum implementers to enhance their pedagogical content knowledge. Specifically, the training covers interpretation of curriculum designs, inquiry-based STEM pedagogy, ICT integration in the learning process, assessment, and how to develop and source for teaching learning resources. These trainings are aligned with the CBE framework and are aimed at improving classroom practice, making STEM practical and engaging for learners.

b). CEMASTEAs conducts workshops to support pedagogical leaders (school principals and heads of institutions) to create awareness of their schools' potential to offer a STEM pathway under the CBE system. In April and June 2025 CEMASTEAs trained 9,362 Senior School Principals on the transition to the

STEM Pathway under CBE. This initiative together with nationwide STEM outreach activities has contributed to expanding the number of students/learners taking the STEM pathway under the CBE system.

II. **Virtual Laboratories**

Technology presents teachers with unique opportunities to enhance the teaching and learning of STEM. By integrating innovative tools such as virtual laboratories, teachers can foster a more engaging, interactive, and effective learning environment. CEMASTEAM with support from the World Bank has developed virtual laboratory platforms and trained 9,230 junior school teachers on how to use virtual labs in the classroom. This platform also enables learners to conduct simulations and interactive experiments. These tools mimic real-world scientific environments and ensure that practical STEM learning can occur even where physical infrastructure is limited.

III. **CEMASTEAM STEM Programme Initiatives**

CEMASTEAM runs targeted learner-facing initiatives such as; the STEM Model school programme, STEM outreach programmes, holiday boot camps on robotics, coding, AI, 3D modelling and printing, Girls' STEM mentorship activities, and the Kenya Mathematics Olympiad. These initiatives are designed to make STEM visible, exciting, and relatable to learners, thereby boosting enrolment and addressing gender disparities.

a.) STEM Outreach Programmes:

CEMASTEAM conducts nationwide STEM outreach activities in schools aimed at creating awareness of the broad opportunities available within STEM fields. These outreach programmes include exhibitions, demonstrations, and motivational talks that expose learners to practical STEM applications and help cultivate early interest in STEM.

b.) Holiday STEM Boot Camps:

The Centre organises STEM boot camps during school holidays, offering learners hands-on exposure to robotics, coding (including Python and C++), 3D modelling and printing, engineering design, and creative problem-solving. These camps provide an immersive

learning environment that nurtures curiosity, innovation, and practical skills beyond the formal classroom setting. Further, it provides opportunities for parental involvement and engagement.

c.) Kenya Mathematics Olympiad (KMO):

A purposeful and highly structured mathematics enrichment initiative aimed at fostering a positive mathematics culture in schools. The Olympiad challenges learners to engage in advanced problem-solving, stimulates mathematical curiosity, and identifies high-potential talent. Successful participants benefit from incentives such as opportunities to represent Kenya in international mathematics competitions, access to scholarship pathways, and enhanced prospects for competitive university placements in STEM-related programmes.

d.) School Visits to CEMASTEIA:

Schools across the country visit CEMASTEIA, where learners interact with specialised STEM facilities, virtual laboratories, robotic equipment, and innovation spaces. These visits enable students to experience real-world STEM environments and expand their understanding of STEM careers and technologies.

e.) Girls' STEM Clubs and Mentorship Programmes:

To address gender disparities in STEM, CEMASTEIA is working on a framework for Girls' STEM Clubs and targeted mentorship programmes that build confidence, dismantle stereotypes, and provide role models for female learners. These initiatives are designed to promote equitable participation and ensure that girls are supported to pursue and excel in STEM pathways and careers.

f.) The STEM Model Schools Programme

CEMASTEIA is working with selected 103 schools spread across all the 47 counties to model STEM education. Each county has at least two STEM Models. Others are distributed across all the eight regions. Teachers and Principals of these schools are trained on the integrated approach to STEM education and principles and practice of inviting school climate. The schools also receive specialized STEM equipment

- IV. The Senior School under CBE will receive its first cohort of learners transiting from Junior School in 2026. According to data

referenced from the Kenya Education Management Information System (KEMIS), the learners' interest in the different pathways is distributed as follows: *Arts and Sports Science – 121,080 learners; Social Sciences – 437,657 learners; and STEM – 569,967 learners (translating to 50.5%), out of a total of 1,127,704 learners.* These numbers are encouraging and demonstrate a sustainable level of interest in the STEM pathway and therefore negates the assertions by the petitioner that there is low student enrolment in STEM subjects. Given that this is the inaugural cohort, the Centre cautions that any conclusion by the petitioner suggesting a decline in STEM enrolment is unsubstantiated by empirical evidence. On the contrary, the magnitude of the uptake recorded in this first year provides a strong foundation for exponential growth in subsequent cohorts as the pathway system stabilizes and associated reforms continue to mature.

4. Issue No. 5: The need for structured professional development for teachers on modern computing and AI pedagogical skills as referenced in Material Concern No. 14 of the petition.

4.1 CEMASTEА wishes to bring to the committees' attention what it is doing on the challenges cited by the petitioner on equipping teachers with modern computing and AI pedagogical skills:

CEMASTEА partnered with Raspberry Pi, Microsoft, and Intel to train its staff on AI in education, computing and code clubs. Through these partnerships the Centre developed a training module and continues to capacity build curriculum implementers on AI in education, computing and code clubs to strengthen STEM pedagogies and enhance their capacity in emerging technologies. This initiative ensures alignment with CBE and supports the integration of digital literacy, innovation, and future skills across all learning areas.

In conclusion, CEMASTEА respectfully submits that the measures undertaken are substantially strengthening the delivery of STEM education nationwide. These interventions, taken together with broader Government investments in infrastructure and curriculum reform, position Kenya firmly on course towards achieving the national target of at least 60% of senior school learners pursuing the STEM pathway.

5. Issue No. 6: Exclusive use of proprietary Robotics Kits during the Kenya Science Engineering Fair (KSEF) as referenced in Material Concern No. 39-45 of the petition.

5.1 CEMASTEА wishes to clarify to the committees' attention the assertion that CEMASTEА together with the Ministry of Education and other stakeholders from KSEF dictate or exclusively prescribe the use of proprietary LEGO robotics systems (i.e Mindstorms and LEGO Education SPIKE) in the robotics category, to the exclusion of more affordable or open-source alternatives, is factually inaccurate and not supported by any evidence. The Centre wishes to clarify the following:

- I. KSEF is an annual school event organised by the Ministry of Education in collaboration with other stakeholders. This event runs from the sub-county level to the National level and is open to all schools providing an equal opportunity for students to participate. There are currently 13 categories in STEM disciplines in which the students compete. Robotics is one of the categories. The introduction of the robotics category by KESF in 2019 which followed a successful countrywide robotics challenge organized by CEMASTEА in 2018 among the STEM Model Schools. The aim was to promote creativity, innovation and problem solving through hands-on learning among learners. CEMASTEА also successfully advocated for the integration of robotics as the **13th competitive category** in the Kenya Science and Engineering Fair (KSEF).
- II. CEMASTEА's role in the Kenya Science and Engineering Fair (KSEF) is to provide ongoing technical support to KSEF through provision of qualified judges. The Centre does not prescribe, compel, or otherwise direct participating schools on the specific robotics kits they must procure or utilise. Kit selection remains solely within the discretion and financial capability of individual schools.
- III. CEMASTEА's previous engagement with LEGO kits arose from a partnership initiative at the inception of the robotics competition. Under this initiative, LEGO partnered with CEMASTEА, and trained its staff on robotics education, who in turn cascaded the training to teachers in STEM model schools.
- IV. CEMASTEА donated LEGO kits to STEM model schools to introduce robotics education. This donation was neither accompanied by any

obligation on the part of the schools to continue using LEGO kits nor intended to restrict them from procuring other alternative kits.

- V. Regarding the assertion of vendor exclusivity in robotics competitions, CEMASTEА wishes to state categorically that KSEF defines competition rules which are standardized based on sound scientific principles, technology-agnostic and non-discriminatory. The evaluation criteria focus on problem solving capabilities, innovation and programming efficiencies.
- VI. The Centre further wishes to humbly submit that all schools, whether STEM model schools or otherwise, retain full liberty to acquire robotics kits that are suitable and affordable to them. KSEF regulations do not restrict any robotics kits in the competition, and no school is in any way disadvantaged for opting for non-LEGO or open-source alternatives. (*See Annexure A: Robotics Competition Rules and Guidelines*).

It is therefore important to bring to the Committee's attention that CEMASTEА's mandate within the KSEF framework pertains to judging and quality assurance of the competition process. The procurement of robotics equipment lies squarely within the purview of individual schools and is not a function exercised by the Centre.

6. CONCLUSION AND RECOMMENDATIONS

6.1 In conclusion CEMASTEА hopes that it has adequately responded to the material concerns raised that specifically regard its mandate.

CEMASTEА remains steadfast in its commitment to:

- I. Continuously enhance teacher professional development including emerging technologies e.g. Robotics, AI, Coding;
- II. Strengthening strategic partnerships with industry, academia, and development partners;
- III. Supporting the Government's digital transformation agenda as outlined in Vision 2030 and the Digital Economy Blueprint.
- IV. CEMASTEА affirms that it is open to constructive engagement with all partners and stakeholders, provided such engagement is undertaken within the applicable laws, legislation, policies and procedures.

CEMASTEА affirms willingness to engage constructively with stakeholders within legal and policy frameworks.

7. SUBMISSION

CEMASTEА respectfully submits this response for consideration by this Honourable Committee and remains available to provide any further information or clarification as may be required.

Respectfully submitted for the consideration of the Honourable Committee,



**JACINTA L. AKATSA, HSC
CHIEF EXECUTIVE OFFICER, CEMASTEА**

Dated: 24th November, 2025

ANNEXURES:

1. Annexure A: KEMIS Data (Excerpts)
2. Annexure B: KPSEA 2023 Report
3. Annexure C: KSEF CONSITITUTION
4. Annexure D: KSEF Rules and Regulations
5. Annexure E: KSEF Robotics Competition Rules and Guidelines
6. Annexure F: KSEF Robotics guide



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P.O Box 30231 - 00100
NAIROBI, KENYA
26th November, 2025

The Clerk of the National Assembly
National Assembly,
Po Box 41842-00100
NAIROBI.

Attn: Serah M. Kioko, MBS

Dear Clerk,

RE: KICD RESPONSE TO PETITION NO. 19 OF 2025 BY THE COMPUTER STUDIES TEACHERS ASSOCIATION (CSTA) REGARDING POLICY AND LEGISLATIVE INTERVENTIONS ON STEM UPTAKE AND COMPUTER SCIENCE EDUCATION

The KICD is mandated to develop, review, and approve curricula, programmes, and curriculum support materials that align with international standards for Basic and Tertiary Education and Training.

The Institute has spearheaded curriculum reforms in the country since the introduction of the Competency Based Curriculum (CBC) in 2016. As per the Basic Education Curriculum Framework (BECF), Junior School (JS) is a distinct level of education with a broad-based curriculum that is intended to prepare learners for the three pathways at Senior School Education. It is at this level that the learner is expected to identify and nurture their potential and interest in preparation for the different career choices. The phase of learning between Primary and Senior School, targets learners in the age bracket of 12 to 14 years.

Following the recommendations by the Presidential Working Party on Education Reform (PWPER, 2023); KICD has rationalised the number of learning areas and curriculum designs in terms of *scope*, integration of subjects/learning areas, gaps, content overload and overlaps in Basic Education.

The petition by the Computer Studies Teachers Association regarding STEM and Computer Science Education raises several issues with regard to Curriculum and the KICD's mandate. Below is our response to the Issues raised:

1. According to the petition (number 8), the petitioner correctly asserts that the Competency-Based Curriculum began integrating computational thinking and coding concepts in 2022. However, the curriculum does not limit the use of Scratch to lower grades or Python to upper grades as alleged by the petitioner. Instead, these tools are presented as suggested learning resources intended to support teachers rather than prescribe specific software or programming languages. Visual programming was introduced for Grade 8 learners in 2024 and extended to Grade 9 in 2025. During this period, applications such as Scratch were used as examples of platforms that help learners grasp programming logic through block-based activities.

KICD is ISO 9001 : 2015 certified.

2. According to petition (number 11), the petitioner rightly highlights the urgent need for a strong Computer Science foundation to equip learners for a rapidly evolving digital landscape shaped by artificial intelligence, robotics, cybersecurity, and data science. These priorities align closely with the direction already taken in the current curriculum in Computer Studies Grade 12 as indicated in the table below:

Strands	Sub Strands
1.0 Foundation of Computer Science	1.7 Emerging Technologies
	2.7 Artificial Intelligence (AI) Concepts
	3.7 Artificial Intelligence (AI) Implications and Ethics
	4.7 Robotics
	5.7 Data Analysis and Visualisation
	6.7 Careers Opportunities
	7.7 Professional Ethics and Legal issues in Computing
2.0 Computer Networking	1.4 Network Troubleshooting
	2.4 Cybersecurity
	3.4 Cloud Computing
	4.4 Social and Ethical Issues in Networking
3.0 Software Development	1.4 Data structures (Arrays, Stack and Queues)
	2.4 Web Development II
	3.4 Software Development Life Cycle (SDLC)
	4.4 Software Project Management

Table 1. extract of Grade 12 Curriculum Design

The Petitioner should note that the pioneer Grade 12 class will be in 2028. The areas alleged not to be in curriculum are covered. It is therefore premature to make a judgement on how the curriculum will not help the learner develop AI, robotics and cybersecurity competences.

3. According to petition (number 12), the petitioner refers to a subject called Computer Science. There is no subject called Computer Science in the curriculum. The petitioner may have been referring to a curriculum reviewed in 2023 during curriculum rationalization following the recommendations of the PWPER 2023. The subject offered is called Computer Studies and is packed with practical's hands-on skills not only in Robotics but across different concepts covered in the curriculum design. The following table shows some of the suggested hands-on learning activities learners are expected to engage in when learning about Robotics. (Grade) 12)

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences
1.0 Foundation of Computer Studies	1.4 Robotics	By the end of the sub strand, the learner should be able to: a) explain characteristics of a robot, b) describe the components of a robot,	The learner is guided to: • use print or digital resources to search for characteristics of a robot and present to peers, • relate components of a robot to their functions,

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences
		c) assemble the components to make a prototype robot, d) program the prototype robot to make it functional, e) use the prototype robot to perform a task, f) appreciate the importance of robots in society.	<ul style="list-style-type: none"> • discuss types of robots and the application areas, • assemble and program a robot to perform tasks, • discuss the impact of using robots in the society, • participate in robotics boot camps, competitions, clubs, societies or workshops to showcase prototype robots built.

Table 2: suggested hands-on learning activities learners are expected to engage in when learning about Robotics. (Grade) 12)

4. In the petition (number 13), the petitioner alleges that Computer Science is offered as a stand-alone subject in Grade 7- 9. This is misleading as there is no stand-alone subject called Computer Studies at Junior School Grade 7-9, following the rationalization of the curriculum in 2023.

The correct position is that Computer Science is not offered as a standalone subject in Grades 7 to 9. Instead, computer-related concepts are embedded within the Pre-Technical Studies subject, in line with the PWPER 2023 recommendations. This introduces learners to foundational computing ideas, including elements of visual programming, without prescribing any specific programming language. Robotics may appear as a suggested learning experience but is not outlined as a distinct learning outcome, allowing flexibility for schools with different resource levels. The curriculum provides suggested learning experiences that teachers may adapt or supplement, and these activities are intentionally hands-on to strengthen problem-solving and design skills across disciplines.

At Senior School, the Grade 10-12, curriculum is offered as Computer Studies, focusing on both foundational and advanced modern technology concepts. It retains some legacy content for continuity while integrating contemporary areas such as emerging technologies, networking, and programming beyond introductory levels, ensuring learners develop relevant digital competencies for today's world."

5. According to petition (number 32), the concern regarding public participation in the development of the Senior School curriculum, including the Computer Science component, is raised. However, the Kenya Institute of Curriculum Development (KICD) followed the established legal and procedural requirements for curriculum review. As part of the Competency-Based Education implementation process, KICD advertised calls for applications from teachers, teacher educators, and relevant professionals to participate in curriculum panels. This is the standard mechanism through which subject matter experts, practitioners, and stakeholders are engaged in developing and reviewing curriculum designs

and support materials. The call for panelists was publicly communicated through official platforms to ensure transparency and wide participation. Public involvement in curriculum development is not limited to panel selection alone. Broader public participation takes place through structured stakeholder forums, submission of written memoranda, monitoring of curriculum implementations, and consultation with education sector partners. These steps were undertaken as part of the Senior School curriculum review process. Feedback gathered through these channels informed revisions to curriculum designs, including those for Computer Studies.

Whether the KICD undertakes consultations on curriculum review with other stakeholders including parents, teachers, and publishers.

Yes, typically, the Kenyan government through the MOE and KICD involves various stakeholders, including parents, teachers, publishers, religious organizations, and industry and education experts, in the process of curriculum review and development. This inclusive approach ensures that the curriculum reflects the needs and perspectives of diverse groups and aligns with the country's educational goals. Here is how the government and KICD undertakes consultations with these stakeholders:

i. Needs Assessment

Needs assessment is the first step in curriculum development. It involves determining the societal needs to be addressed by education programs. In the context of curriculum development in Kenya, various stakeholders play important roles in the needs assessment process. These stakeholders represent different sectors within the education system and the broader community. Here are some key stakeholders involved in needs assessment for curriculum development in Kenya:

- a) **Teachers and Educators:** Teachers and educators are crucial stakeholders in curriculum development. Their insights into the needs and challenges faced in the classroom are invaluable for identifying areas that require attention in curriculum design and implementation. They provide insights into the designs, implementation, and assessment of education program. Teachers of Computer Studies were engaged in providing their insights into the curriculum developed as they were respondents during needs assessment for curriculum reform.
- b) **School Administrators:** Principals, head teachers, and other school administrators provide perspectives on the operational aspects of curriculum delivery within schools. Their input helps ensure that curriculum development efforts are practical and feasible at the school level.
- c) **Parents and Guardians:** Parents and guardians are key stakeholders as primary partners in the education of their children. Their input in needs assessment activities helps ensure that the curriculum aligns with societal values, parental expectations, and the needs of learners.
- d) **Community Representatives:** Community leaders, local organizations, and NGOs represent the broader community's interests and priorities. Their involvement in needs assessment efforts ensures that the curriculum reflects the cultural, social, and economic contexts of different communities across Kenya.
- e) **Publishers:** provide critical information related to the quality of instructional materials for curriculum implementation

Engaging these diverse stakeholders in needs assessment processes ensures that curriculum development efforts in Kenya are informed by multiple perspectives and reflect the needs and aspirations of various stakeholders within the education system and society at large

ii. **Stakeholder Meetings and Workshops:**

The government through MOE, KICD, and KNEC organizes meetings, workshops, and focus groups discussions with parents, teachers, publishers, and other relevant stakeholders to gather input on curriculum review. These sessions provide opportunities for stakeholders to share their experiences, concerns, and suggestions for improving the curriculum. Over the years, several stakeholder meetings have been held. Some of the stakeholders include Parliamentary and Senate Committees on Education, Religious Organizations, Professional organizations like KEPSHA, KPSA, KESSHA, Trade unions, Universities, Private sector, Civil society etc.

iii. **Monitoring and evaluation:**

The government through MOE, KICD, and KNEC conducts annual monitoring of the implementation of CBC. Surveys, questionnaires, and Focus Group Discussion (FGC) gather feedback from parents, teachers, and publishers on various aspects of the curriculum. This data helps identify areas for improvement and informs the curriculum development process. During these monitoring activities the petitioner has room to provide feedback on the curriculum that will be considered during review.

iv. **Public Consultation Forums:**

The government and KICD organizes public consultation forums where stakeholders can openly discuss proposed changes to the curriculum. These forums encourage transparency and accountability in the curriculum review process and allow for meaningful engagement with the broader community.

v. **Feedback Mechanisms:**

The government and KICD has established feedback mechanisms, such as online portals or dedicated hotlines, where stakeholders can submit their comments, suggestions, and concerns regarding the curriculum. This ensures that stakeholders have avenues to participate in the review process, even if they cannot attend meetings or workshops in person.

Overall, involving parents, teachers, publishers, and other stakeholders in the curriculum review process is crucial for building consensus, addressing concerns, and ensuring that the curriculum meets the needs of learners and the broader education community. By fostering collaboration and dialogue among stakeholders, the government can develop a curriculum that is relevant, inclusive, and effective in preparing students for the future.

According to petition (number 33), the Ministry of Education has released the Senior School subject and curriculum guidelines scheduled for implementation in 2026. The framework outlines ten subjects, including four compulsory ones such as Mathematics, English, Kiswahili, and Community Service Learning alongside non-assessed subjects such as Physical Education, ICT Skills, and religious instruction, all aimed at supporting holistic learner development.

It is important to clarify that the curriculum development process has not overlooked the implications of emerging technologies such as artificial intelligence and robotics as alleged by the petitioner. These areas are progressively addressed within the evolving STEM pathway, where Computer Studies is offered as a distinct subject separate from ICT Skills. The Computer Studies curriculum incorporates foundational concepts relevant to modern computing disciplines, including programming, data concepts, digital systems, and responsible use of technology. Furthermore, curriculum reforms have been informed by global technological trends and comparative benchmarks from various countries. The curriculum has integrated emerging areas including AI, robotics, and automation as shown on the table 1 and 2 above. This implies the petitioner may not have accessed the curriculum designs before making the allegations

In the petition (number 46), the petitioner alleges that Computer Studies as a subject is offered at Grades 7 to 9. There is no subject called Computer Studies for Grades 7 to 9 in the current curriculum. Following the curriculum rationalization in 2023, Computer studies and ICT concepts are embedded in Pre-Technical studies learning area and there is no section or learning outcome explicitly for robotic concepts as alleged.

According to petition (number 47), the letter and identified documents were received and responded to on the 23rd of March 2025

Response to the Petitioner's prayers to National Assembly:

- a) In prayer (B) the petitioner raises important points regarding the continued strengthening of Kenya's computing education. The Kenya Institute of Curriculum Development (KICD) recognizes the significance of a modern and industry-aligned Computer Studies curriculum and has already put in place mechanisms that address many of the concerns as outlined in the table number 1 and 2 above. KICD continues to engage a diverse range of stakeholders during curriculum review, development and implementation, including teachers across the country, industry professionals, teacher educators, and university subject experts. On learning materials, KICD is advancing a blended approach that includes both print and digital formats. Kenya Education Cloud (KEC) is a digital content platform already in use across basic education and it provide opportunities for flexible updates and integration of global digital tools.
- b) In response to Prayer (d), the Kenya Institute of Curriculum Development (KICD) appreciates the interest in ensuring that emerging technologies like Artificial Intelligence (AI), Robotics, Cybersecurity, and Data Science are effectively integrated into the Basic Education curriculum, in alignment with the Kenya National AI Strategy 2025–2030. We wish to clarify that the current curriculum integrates these concepts progressively, based on the learner's developmental level, age, and cognitive readiness. At the Junior School level (Grades 7–9), foundational digital literacy and computational thinking are introduced within Pre-Technical Studies. While AI, Robotics, and Data Science are not standalone subjects at this stage, prerequisite skills like problem-solving, visual programming, and digital tool proficiency are embedded to prepare learners for more advanced concepts. At the Senior School level, the ICT and Computer Studies curriculum incorporate elements of AI, Robotics, Cybersecurity, and Data Science. These concepts are covered at a level appropriate for this pre-career stage, equipping learners with practical and theoretical foundations for 21st-century digital competencies. For example:
 - **Computer Studies:** Includes a "Software Development" strand from Grades 10 to 12, with sub-strands in Grade 12 on Cybersecurity, Emerging Technologies, Artificial Intelligence, Robotics, and Data Analysis and Visualization.
 - **ICT:** The "ICT and Society" strand in Grade 12 covers Digital Citizenship, including cybersecurity under cyber threats, as well as Emerging Trends in ICT, Artificial Intelligence, and basics in Robotics, Data analysis and visualization under strand called productivity tools sub strand spreadsheets in Grade 11.
- c) In response to prayer (L) the petitioner should take note that in the KICD Basic education curriculum framework, Computer Studies is a subject at senior school categorized under the STEM pathway. ICT is offered as a support subject in senior schools
- d) In response to prayer (m), in the current curriculum the subject is called "Computer Studies" and not "Computer Science." In accordance with the Basic Education Curriculum Framework, this subject is categorized under the STEM pathway.

- e) In response to prayer (cc), the Institute adheres to the international standards, supported by UNESCO-IBE, to review the curriculum every five years and will commence this process when the current education cycle ends in 2028,

CONCLUSION

KICD acknowledges the concerns raised by the Computer Studies Teachers Association (CSTA) regarding the strengthening of STEM and Computer Science education. The Institute is committed to developing a robust, relevant, and dynamic curriculum that equips learners with 21st century skills, including digital literacy and computational thinking.

However, upon careful review of the petition, KICD finds that the issues pertaining to the curriculum are based on several fundamental misapprehensions and are, therefore, not merited. We propose that the petition be dismissed on the following grounds:

1. The Petition is Based on an Outdated Curriculum Framework.

The curriculum concerns raised by the petitioner are anchored in a curriculum structure that has since been comprehensively reviewed and rationalized. The current Competency-Based Curriculum (CBC), including the pathways for Senior School, was finalized and approved in 2023 following Rationalization as recommended by the PWPER. The rationalization exercise meticulously integrated stakeholder feedback, including inputs from subject specialists and teachers, to address the very gaps the petition alludes to. Therefore, the issues raised have already been substantively addressed in the curriculum currently being implemented.

2. The Curriculum Review Process was Inclusive of Practitioners.

The petitioner's narrative assumes a lack of involvement of computer teachers in the development process. This is incorrect. The KICD curriculum development process is highly participatory. The technical teams that developed the Computer Studies curriculum were predominantly composed of practicing teachers of Computer Studies, among other experts. To claim otherwise is to disregard the dedicated contribution of these professionals who formed the backbone of the review.

3. Curriculum Development Cannot Be Ceded to a Single Interest Group.

While KICD values the input of stakeholder associations like the CSTA, the mandate for national curriculum development rests solely with KICD, as per the KICD Act No. 4 of 2013. Allowing any single interest group to dictate curriculum content would amount to a conflict of interest and undermine the national, inclusive, and balanced approach required for curriculum design as per the international standards. Our process ensures that the curriculum serves the broader national interest, not the proprietary interests of any single organization. Indeed, no other subject based organization has laid a claim on the curriculum development process in the past.

4. The Proposed Pathway Overhaul is Impractical and Prohibitively Costly.

The petition's proposal to establish Computer Science as a distinct pathway, separate from the STEM pathway, is not a simple adjustment but a fundamental overhaul of the Senior School Curriculum. Implementing such a change at this advanced stage would necessitate massive re-investment in re-writing curriculum designs, retraining teachers, re-developing learning materials, and re-configuring

school infrastructure. This would be an unjustifiably expensive and logistically disruptive undertaking for the taxpayer, with no guaranteed educational benefit over the current integrated STEM approach.

5. The Petition Prejudges a Curriculum Yet to Be Implemented.

The new Senior School curriculum, which incorporates Computer Studies within the STEM pathway, is scheduled for implementation in the coming academic year 2026 at Grade 10. It is **premature and speculative** for the petitioner to declare that this curriculum "would not produce the right person" before it has even been operationalized. KICD holds that the curriculum should be given an opportunity to be implemented, monitored, and evaluated based on empirical evidence from the field, not preconceived notions.

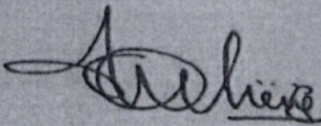
PRAYER

The Kenya Institute of Curriculum Development respectfully submits that the issues raised in the petition regarding the curriculum are unfounded, based on an outdated curriculum and fail to acknowledge the comprehensive and inclusive review process already undertaken. The Institute has, in its mandate, adequately addressed the integration of computing disciplines within the curriculum rationalized in 2023. The petition offers no new substantive evidence to warrant a review of the rationalized curriculum and instead proposes changes that are logistically and financially unfeasible.

It is therefore our prayer that the Honorable House finds no merit in the curriculum-related aspects of Petition No. 19 of 2025 and dismisses it accordingly.

Thank you.

Yours sincerely,



**PROF. CHARLES O. ONG'ONDO, PhD., MBS.
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KENYA INSTITUTE OF CURRICULUM DEVELOPMENT**