

Issue 014, 2023



CEMASTE INFO

Newsletter

25,000+

Training for Junior School Teachers



Editorial

It is yet another moment of delight as we release the 14th issue of the **CEMASTEA INFO Newsletter**. It contains articles related to our activities as an institution and also those we implement collaboratively with other stakeholders in the education subsector.

One of the main areas of focus is the training for Junior School (JS) teachers. This was a milestone for CEMASTEAs as we were able, for the first time, to train many teachers in one go. The training assisted the JS teachers with cutting-edge and contemporary teaching strategies, skills, and knowledge in all the learning areas and improved interactions with learners as they implemented lessons. This training was a huge success based on valuable feedback from participating teachers. We are hopeful that they are implementing lessons and skills learned.

We are also happy to report on our collaboration with the Education Development Trust as they launched the 'Wasichana Wetu Wafaulu' Project Report. This decade-long project focused on girls' education from marginalised contexts. CEMASTEAs participated in this noble endeavour by training teachers from participating schools on gender-responsive STEM pedagogies and school leaders on leadership in STEM.

The Centre has two ground-breaking courses: training for teachers in the pre-primary in



Nairobi County and training on coding for primary school teachers. This was the first time CEMASTEAs implemented training in both of these areas. Coding is one of the fundamental areas of learning in CBC, and a study done by CEMASTEAs in 2022 revealed a need to upskill teachers on strategies for teaching coding. The training for pre-primary teachers was also a long-held dream of CEMASTEAs, and with its leadership, it finally came to pass. Participating teachers were indebted and sincerely grateful to CEMASTEAs for organising the course.

We invite you also to read other articles, including the continued tree growing programme, Ualimu Bora, Book Review, a piece celebrating one of our greatest athletes, Faith Kipyegon and a new column, *My Story*.

Enjoy your reading, and kindly give your feedback.

Thuo Karanja, Editor

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Message from the CEO



When a wave of change confronts us, do we hold on to the old ways or navigate and adapt to the new set of circumstances we find ourselves in? With the introduction of the Competency-Based Curriculum (CBC) in 2017, all education stakeholders embraced the new system. CEMASTEА was not left behind and is committed to continuously preparing teachers and learners for Junior Secondary Education (JSE). We have ensured this is the case by not only coming up with an easy guide that teachers and education officers can use in administering and applying the tenets of CBC but also conducting training, monitoring and supporting programmes for Junior Secondary Schools (JSSs)

across the counties since the turn of the year.

The Competency Based Curriculum (CBC) nurtures learners' potential, promotes national values, integrates Science, Technology and Innovation and ensures that skills taught in educational institutions match the requirements of modern industries, *Kenya Vision 2030*, the Constitution and the New World Order at large. One of the tiers in the new curriculum structure is the Junior Secondary Education (JSE) level, and the pioneer cohort made the transition to Junior Secondary Schools in early 2023.

I should reiterate here that all these are concerted efforts by multiple stakeholders, led by the Ministry of Education, which published a set of '*Guidelines for Implementation of Junior Secondary Education*' broadly acknowledged as the go-to manual for reference on mandatory, standard, technical procedures and practices by Junior Secondary Schools (JSSs).

CEMASTEА continues to champion equity in providing and accessing quality education in Kenya, and we could not be prouder of our role and involvement in that regard.

Finally, I continue to encourage all our readers to spread the gospel of STEM because it brings out the fun and joy of modern learning and is a fundamental fixture in the national and global economy.

Thank you,

**Jacinta L. Akatsa, HSC,
Chief Executive Officer**

Training Junior Secondary Schools Teachers

The Junior Secondary (JS) Guidelines

By Phillip Maate

The Presidential Working Party on Education Reforms (PWPER) in Kenya, appointed by the President on 30th September 2022, recommended that Junior Secondary Schools (JSS) be domiciled in primary schools. Further, the PWPER recommended that the Ministry of Education provide guidelines as a



reference on mandatory and standard protocols for implementing Junior Secondary Education (JSE). The *Guidelines for the implementation of Junior Secondary* were released in January 2023. The ten-chapter document provides the technical guidance, norms, and standards for Junior Secondary Schools and serves as a platform for regulating the implementation of JSE. The guidelines are a vital reference for educational administrators and managers on JSS and are helpful to policymakers and institutional-level practitioners.

The guidelines mandated that CEMASTEIA collaborate with other Ministry agencies to train Junior Secondary School (JSS) teachers on Pedagogical Content Knowledge (PCK). Training Junior Secondary School (JSS) was prioritised given that many of them were most likely out of the school system since graduating from college and needed to re-awakened their pedagogical skills.

CEMASTEIA, in collaboration with the Directorate of Quality Assurance and Standards and JSS Coordination Unit at the Ministry of Education (MoE), adopted a multi-stakeholder approach to implement the training. The Centre worked with other agencies, including the Teachers' Service Commission, Kenya Institute of Curriculum Development (KICD), Kenya Institute for Special Education (KISE), Kenya Education Management Institute (KEMI), and the Kenya School of TVET, in developing a training module. The module addressed content on the five subject clusters, including mathematics, integrated science, languages, technical, and humanities (social sciences). After developing the module, the master Trainers held a two-day induction workshop in preparation for regional training of county trainers.

The Model and the Training JSS Teachers

By Makanda John and Makoba Kizito

The Model

The Junior Secondary School (JSS) teachers were trained using the cascade model. Cascaded training delivers training through several levels until reaching the final target group. In this model, CEMASTEIA collaborated with other Ministry of Education agencies, including KICD, TSC, and KISE, to generate training content for JSS. Once the module was complete and validated, a team of master trainers from MoE, TSC, and other multi-stakeholder institutions was inducted to train County trainers on strategies to deliver the training to JSS teachers at the county level. The JSS training concentrated on the following learning areas: Mathematics, Languages, Humanities, Technical Science, and Integrated Science. The regional training for county trainers was conducted from 14th to 17th



April 2023 in five regions, namely Embu, Eldoret, Kakamega, Machakos, and Nakuru, with 900 county trainers involved. The training was monitored and supported by subject experts from MoE, Directorate of Quality Assurance.

The Training

Following their training, the county trainers organised the training of Junior Secondary teachers at the Counties in two batches from April 25–28 and May 2–5, 2023. The County Teacher Capacity Development Committees (CTCDCs) coordinated the training at the County. The training theme was *'Enhancing Teachers' Pedagogical Content Knowledge (PCK) for Successful Implementation of Competency-Based Curriculum in Junior Secondary (JS)*. The teachers were expected to i) Use an Inquiry-Based Learning strategy for effective learning, ii) Develop innovative teaching and learning activities/learning experiences for improved learning outcomes, iii) Plan a lesson based on curriculum designs for Grade 7 incorporating appropriate innovative activities; iv) Integrate ICT in teaching and learning for improved learning outcomes; v) Describe various ways of enacting communities of practice vi) Appreciate the importance of strengthening PCK in effective curriculum delivery.

Since Competency-Based Curriculum (CBC) strives to improve learners' competencies, the focus on PCK training was to enhance their ability to conduct learner-centred lessons. During the training, JSS teachers further analysed the CBC designs. The study of the designs made them understand the planning process, formulation of learning outcomes, and preparation of lessons based on learning outcomes after analysing the curriculum designs. They also created teaching and learning resources using objects in their immediate surroundings. The prepared lessons were peer-taught and discussed To identify areas for improvement. The Junior Secondary training produced lesson plans, PowerPoint presentations, and teaching and learning resources. They also kept a journal that documented their training experiences.

Opening and Closing ceremonies

Senior education officials from the Ministry of Education and the Teachers Service Commission conducted the opening and closing ceremonies during the training were led by senior education officials, including those from the Ministry of Education and the Teachers Service Commission. In Elgeyo Marakwet, TSC County Director, Ms Beatrice Ogwe, particularly praised CEMASTEIA for a timely rolling out of the training for JS teachers for enhanced understanding of CBC. She called upon bringing on board all the teachers that were left out. Other guests noted that the Government had put a lot of resources into implementing JS and encouraging teachers to take the training seriously. It was emphasised that the JSS teachers had been retooled in curriculum design interpretation and implementation. The current training was on Pedagogical Content Knowledge (PCK) to equip the 1st lot of JSS teachers with the requisite skills for effective lesson planning and delivery.

Feedback and improvements

The majority of JS teachers appreciated the experience and called up the organisers to mount other such training. Some comments on the experience included *"an appreciation for CEMASTEIA's preparedness, organisation and commitment to ensure JSS teachers are equipped with skills and knowledge to implement through learning and teaching process"* CTCDC official; *"We fully support this initiative by CEMASTEIA for such wonderful training. We are very impressed that they have brought all teachers on board,"* KUPPET official and *"What we have always asked for has come to pass. Finally, CEMASTEIA is training all teachers in JSS. This is the best thing that has happened,"* said the JSS Teacher.



There were suggestions for improvement, including increasing the time for the course, making it more interactive and inclusive for all teachers, and expanding the use of ICT. Some suggested other areas to be trained in, including preparing professional documents, preferably lesson plans. This training marked a significant milestone as 29,096 teachers participated in the training across the country out of the expected 29,482 in the 45 counties where training was implemented, translating to a 99% turnout. This is the highest number of teachers CEMASTEIA has ever trained in one level of training at a go.

Coding Skills for Teachers

By Clotilda Nyongesa & George Kiruja

Science, Technology and Innovation have become integral learning areas in today's rapidly evolving world. Equipping young minds with a foundational understanding of science and computing is essential to prepare them for the technologically advanced environment they will encounter as they grow. Coding is one of the sub-strands in Grades 4 and 5 of the CBC curriculum is coding. Coding proficiency is a technical skill and a gateway to computational fluency and design thinking. Introducing coding at an early age fosters creativity and empowers learners to tackle complex challenges with innovative solutions.

A study on coding conducted by CEMASTEА (2022) revealed a need for support in teaching this valuable skill. For most teachers to respond to this need, CEMASTEА trained 282 mathematics and science teachers from primary schools in all forty-seven counties. The training was implemented virtually from 12th to 23rd June 2023. The course content included an introduction to the fundamentals of coding, exploring patterns and games and an overview of animations and graphics using the Scratch application. The teachers were given time to interact with these resources via CEMASTEА's portal, which allowed them to learn at their own pace. Live sessions provided a platform for direct interaction with trainers, while follow-up scaffolding on WhatsApp created an ongoing support network as teachers did assignments and projects.

An immediate impact of the training was the positive feedback received from the teachers both in the WhatsApp group and at the portal. Most participants could use Scratch to develop exceptional coding projects in a short space of time. These projects were centred on addressing real-world and everyday problems reflecting the practical applications of coding beyond the classroom.

By empowering teachers with the knowledge and skills needed to teach coding effectively, CEMASTEА has taken a significant step towards empowering teachers with knowledge and skills for implementing one of the challenging learning areas in CBC. The impact of this

initiative will undoubtedly extend far beyond the classroom and hopefully shape a future generation equipped to navigate the challenges of the digital age with confidence and ingenuity. We look forward to a future where learners are fluent in coding and empowered to make a positive difference. At CEMASTEА, we celebrate the success of this program and continue to invest in teacher professional development programmes relevant to the needs of the teachers and the learners. Working with other stakeholders, we envision a brighter, more technologically advanced future.



A sample coding project on environmental conservation by Mr. Joel Anzete Angulu, Bwake Primary School, Trans Nzoia County

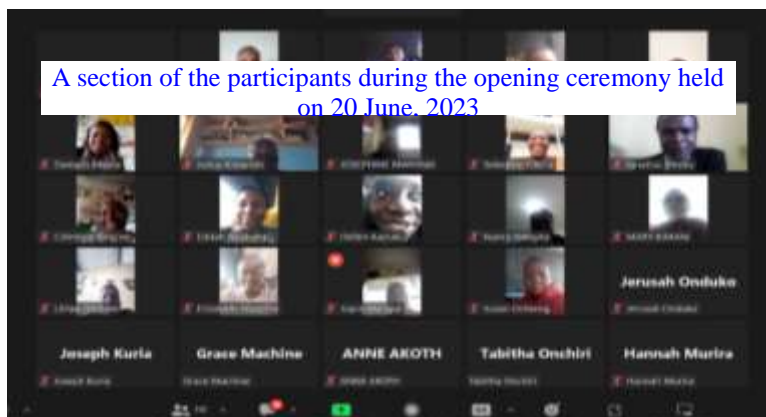
FEEDBACK: "Good evening everyone; I don't want to feel left behind but want to join my fellow colleagues in ascertaining that the training was good, in fact a notch higher than any other CEMASTEА/SMASE training I have ever attended before, The host were at their best, the trainers exceeded expectations and am glad BATCH 2 has come out of this a better team ready to implement all knowledge and practice attained to better CBCs in this middle Learning level. As pioneers, we still remain at your feet, and will consistently rely on the guidance of our able trainers and the INSET in general to ensure implementation of CBC succeeds as per laid down frameworks. The participants (trainees); also feel appreciated, the cordial relationship we have shown to each other should continue." *County Trainer*

CBC Training for Pre-Primary School Teachers

By *GMasai and WMagu*

On June 20, 2023, Mr. Gari Moriasi, Director-Early Childhood Education at the Ministry of Education, opened the first online ten-day course on Pedagogical Content Knowledge for pre-primary school teachers, with the theme: "*Enhancing Teachers' Pedagogical Content Knowledge (PCK) for effective implementation of Competency-Based curriculum in Pre-primary schools*". The training targeted 600 teachers from Nairobi County.

Mr Moriasi expressed gratitude for the commendable efforts CEMASTEА was undertaking in enhancing the skills and knowledge of mathematics and science teachers across the country, explicitly pointing out the focus of equipping Nairobi County pre-primary teachers with the necessary tools to implement the Competency-Based Curriculum effectively. Mr Moriasi announced that county governments had been actively involved in enhancing the education system and had undertaken significant steps by providing learning materials, improving infrastructure, offering school meals, employing teachers, and ensuring remuneration for ECDE teachers. Participants were encouraged to embrace ICT in their teaching and learning practises. He proposed expanding the training programme to various counties to enhance early childhood development and education (ECDE) nationally.



CEO of CEMASTEА, Mrs Jacinta Akatsa, noted that the training highlighted the importance of pre-primary teachers in giving early childhood experiences. This built a strong foundation in the requisite skills for effective transition to the lower primary level. Mrs Akatsa affirmed that the training would improve Pedagogical Content Knowledge and demystify early science and maths. Students would discover that science and maths were entertaining at all levels. She encouraged attendees to have productive dialogues throughout the training and beyond.

The Kenya Institute of Curriculum Development (KICD), Kenya National Examination Council (KNEC), and selected tutors from selected Teacher Training Colleges (TTCs) collaborated to develop a course module based on the curriculum design and research on CBC implementation in pre-primary education.

Collaboration: Embracing Knowledge Exchange

By *KMakoba & Dan Orero*

To promote STEM, CEMASTEА fosters an environment of knowledge exchange and collaboration. In an exciting event held from April 3rd to 6th, 2023, the Centre enjoyed hosting Gashora Girls' Academy of Science and Technology, an all-girls secondary boarding school from Rwanda. The Academy was established to nurture Rwanda's young women into the scientists, entrepreneurs, advocates, and thought leaders our world greatly requires. Delegates had the opportunity to experience the extraordinary facilities at CEMASTEА. The team also visited BuruBuru Girls', St. George's Girls', and Mumbuni Boys' Schools to observe lessons.

Ualimu Bora: Lessons from STEM Model Schools on implementing the STEM Pathway

By Mungai Njoroge, PHD

The Basic Education Curriculum Framework (BECF) details that the purpose of the Senior School (Senior Secondary School) is to "lay the foundation for further education and training at the tertiary level and the world of work". The specialisation in Senior School will involve the learner pursuing studies in one of the three pathways: the Arts and Sports Science, Social Sciences, or Science Technical Engineering and Mathematics (STEM) pathway. The STEM pathway is intended to boost Science, Technology, and Innovation (ST&I), a key enabler to attaining Vision 2030. How can secondary schools support learners in the STEM pathway? This is a pertinent question to consider and act on – given that the first cohort of students to enrol in the STEM pathway. Research conducted by the Centre for Mathematics, Science and Technology Education in Africa (CEMASTE) in 28 sampled STEM Model schools highlights commendable practices and areas of improvement that can form valuable lessons to support the implementation of STEM pathways. The following are sample admirable practices identified in the sampled schools and suggested areas of improvement.

Commendable practices

Development of learners' entrepreneurial and industrial skills through Education for Sustainable Development activities and projects. Sample of the completed projects with evidence of learner involvement included solar energy installations, biodigester, sinking of boreholes, purifying and bottling water, bakery, and soap making. Students were involved in agricultural activities, such as crops and animals, which were used to substitute diet and sell to staff and the community. Schools supported learners in environmental management and conservation programs. This was evident in the well-maintained flower gardens and trees within the school compound, which the learners maintained as reported. Other projects involving learners include preventing soil erosion, recycling, and reusing non-biodegradable materials. The bio-degradable waste products were used to make compost manure for farming. Learners generated income for their schools and clubs through

sales. These enhanced learners' environmental conservation skills.

Career guidance programs and non-discriminative subject choice policies. Some schools deliberately encouraged learners to study the three sciences (Physics, Chemistry & Biology). Analysis of self-reports by teachers in charge of career guidance in selected STEM model schools indicates an increase in learners' enrolment in STEM subjects from 2017 to 2021. The findings show that the number of male learners who enrolled in the three sciences increased steadily from 49.68% to 54.64%, while that of female learners rose from 34.31% to 36.89%. Furthermore, 71.4% of learners participating in the focus group discussion had dreams and aspirations to pursue STEM-related careers. Of these, 97.8% of the learners were well informed of the requirements of their dream career choices in STEM.

Promoting innovations and improvisation in learning concepts in the respective STEM subjects. In some schools, the learners participated in sourcing and developing learning resources. For instance, in one of the STEM model schools, learners heated waste plastic materials. They used the molten plastic to form carbon and hydrogen models used in teaching and learning about hydrocarbons in Chemistry. In addition, learners made models for teaching and learning mathematics. Principals in some of the sampled schools reported that the teachers used the ESD projects to support learning concepts in Biology, Chemistry, and Agriculture. Further, the Principals observed that the engagement of students in the ESD projects and their application in lessons enhanced students' motivation to learn and discipline.

Areas of improvement and support. Actualizing learner-centred pedagogical approaches. The research findings generally indicated nuances of learner-centred pedagogical practices in the lessons observed. However, this was not satisfactory, given the expected role of active engagement in facilitating the learning of concepts in STEM. Table 1 is an excerpt from

findings indicating the percentage rating on key aspects of learner involvement in the lessons observed across forms (1, 2, 3,4) and subjects (Mathematics, Biology, Physics, Chemistry). The higher percentage ratings on the "Not evident" column suggest that most teachers require further support to actualise learners' active engagement during STEM lessons.

Percentage rating on evidence of learner involvement during a lesson

Key aspects of learner involvement	Evident	Not evident
There is evidence of the application of concepts to real-world problems (the learner was able to connect concepts to real-life situations)	34.8%	65.2%
There is evidence of learners applying the engineering design process to solve a problem (Learner: Imagines/ Plans/ Create-makes Tests-experiments/ Improves Shares/presents)	27.3%	72.7%
Evidence of interdisciplinary approach (Learner can use concepts from other disciplines to solve problems /Teacher can use concepts from other disciplines to support the learning)	39.1%	60.9%
There was evidence of tasks that allowed learners to come up with multiple solutions (The Teacher presented open-ended questions and tasks/ Quality of KIQ /Variety of learner responses)	36.4%	63.6%

The ratings on the first and second aspects suggest that teachers need support to help learners connect concepts to real-life situations and apply the engineering design process to solve problems. One way to achieve this is to emphasise teachers providing experiential learning opportunities to learners through ESD projects. Some schools had a challenge in waste management, which mirrors the pollution problem in society. For example, in the case of organic waste

management generated from food leftovers in the kitchen, learners can engage in ESD projects, such as rearing pig and poultry and vegetable farming. This would promote a cleaner environment as well as food security. Learners should be supported in designing, constructing, and regularly repairing the pigsty and chicken coops.

The third aspect in the table suggests that teachers need support in implementing an interdisciplinary approach in STEM Education. Concepts were taught in isolation, even where possible connections were possible. For example, in a mathematics lesson that involved the construction of the regular polygon in Geometry, the Teacher was advised to help learners relate the concept to a survey in Geography. The fourth aspect on the table is the element that allows learners to assume an inquiry position. Teachers need to recognise the learner as a co-inquirer and to adapt inclusive instructional practices that provide all learners with opportunities for active participation in the learning process. Teachers can become better at this by engaging in professional development activities, such as Action Research and Lesson Study, through communities of practice at the school level.

Preparations for implementing STEM pathways in Senior Schools is an urgent undertaking for all stakeholders. Unique practices in STEM model schools can provide valuable lessons for adaptation by relevant stakeholders to support preparation for STEM pathways. However, the practices in the STEM model are not exhaustive. A synergy of suggestions and conceptions from all relevant stakeholders is required to prepare and successfully implement STEM pathways in Senior Schools.

Word of Encouragement



For bodily discipline is only of little profit, but godliness is profitable for all things, since it holds promise for the present life and also for the life to come *1 Timothy 4:8*



The Prophet Muhammad (peace be upon him) said: "God, His angels and all those in Heavens and on Earth, even ants in their hills and fish in the water, call down blessings on those who instruct others in beneficial knowledge." - *Al-Tirmidhi, Hadith 422*

46th KESSHA Annual National Conference

By GMasai and AMumbi



CEMASTEА participated in the 46th Kenya Secondary School Heads Association (KESSHA) Annual National Conference held from 26th to 30th

June, 2023 at Sheikh Zayed Children Welfare Centre, Mombasa. The Centre showcased its milestones towards fulfilling the conference theme: *'Enhancing effectiveness and efficiency of education in Kenya'*. Upon visiting CEMASTEА's booth, Dr Belio Kipsang, CBS, Principal Secretary - State Department of Basic Education, Ministry of Education, was welcomed by the Chief Executive Officer, Jacinta L. Akatsa. Dr. Belio commended CEMASTEА for promoting STEM education and educating curriculum implementers using the CEMASTEА portal.

UNESCO (KNATCOM) National Cultural Celebrations

By Beatrice Macharia & Dan Orero

In a commendable display of leadership, CEMASTEА took the lead in the exhibition category at the 10th Anniversary Celebration and the 4th Kenya National Commission for UNESCO (KNATCOM) National Cultural Celebrations. The event, hosted at the Kenyatta International Convention Centre (KICC) from 12th to 15th April 2023, has a theme: *"A Decade of Excellence - Enhancing Development, National Cohesion, Identity, and Pride."* The Cabinet Secretary for Youth Affairs, Sports and the Arts, Hon. Ababu Namwamba, officially launched the four-day event. The exhibition brought together several organisations that showcased a diversified portfolio of their activities.

CEMASTEА's outstanding participation in the exhibition category showcased its commitment to excellence and dedication to promoting development, fostering national unity, and preserving our cultural heritage.

The Centre is a key stakeholder in training, research and capacity development in the STEM ecosystem. It allows STEM teachers to share ideas about their classroom practices. It equips them with knowledge and teaching skills for improving the quality of education through real-world and inquiry-based learner experiences.



Cabinet Secretary, Youth Affairs, Sports and the Arts, Hon. Ababu Namwamba (EGH) signs the visitor's book at the CEMASTEА's booth during the exhibition

CEMASTEА BUNGOMA

Malenga nayo makini, nina yale ya kunena,
Tumeshinda mafunzoni, mengi tumejua sana,
Walimu walitamani, kufahamu ya maana,
CEMASTEА Bungoma, kwa ukweli inafana.

Na Bungoma tulitua, na sasa tumemaliza,
Ni mengi tumeyajua, tumeweza kujikuza,
Masomo taendelea, ukweli tutajikaza,
CEMASTEА Bungoma, kwa ukweli inafana.

Jambo nalo la muhimu, kufahamu mtaala,
Kujifunza tuna hamu, hakuna tena kulala,
Walimu watabasamu, kokote kila mahala,
CEMASTEА Bungoma, kwa ukweli inafana.

Sisi sote tu mahiri, shuleni tukirejea,
Na tutakuwa tayari, kwa masomo kupepea,
Tumejipa ujasiri, na makali tumenoa,
CEMASTEА Bungoma, kwa ukweli inafana.

Ukweli tutambuka, mambo haya ya maana,
Watoto taelimika, na kuzembea hakuna,
Ndio maana twataka, wafahamu kwa mapana,
CEMASTEА Bungoma, kwa ukweli inafana.

Pesa leo mifukoni, tutakula sasa nyama,
Sukuma hatutamani, tukikula tutatema,
Kalamu naweka chini, nimefika kaditama,
CEMASTEА Bungoma, kwa ukweli inafana.

*FerdyB na kalamu uhakiki wa hakika
Gatuzi la Bungoma.*

Going Green: From Seeds to Trees

By Paul Oyuga & Thuo Karanja



Leading by Example: His Excellency President William Ruto plants a tree at Kona Baridi in Kajiado County on December 21, 2022. Pic Courtesy Sila Kiplagat: Nation Media Group

On Wednesday, December 21, 2022, His Excellency President William Ruto launched a tree restoration programme at Kona Baridi in Kajiado County. The initiative aims to combat climate change that has resulted in global calamities, including unpredictable rainfall patterns, floods and drought. The latest such disasters have been the flooding in northwest China and the wildfires in Hawaii, resulting in enormous ecological devastations and destruction of the built environment, including loss of lives. In Kenya, the effects of climate change have been experienced with the extended drought in 2022. Its effects included low yields in farm yields across the board and the deaths of livestock and wild game. While 2023 has experienced some increase in rainfall, the cost of food crops that take time to mature, such as maize, is still being felt, with animal stocks in the rangelands yet to recover.

One of the sustainable solutions to stop and even reverse the effects of climate change and reduce greenhouse emissions is to grow trees. The President has committed to restoring 5.1 million hectares of deforested and degraded landscapes.

This is now captured as one of the Presidential Directives in the financial year 2023-2024 performance contracts for all government Ministries. CEMASTEА has been at the forefront of tree planting under its Education for Sustainable Development (ESD) programme, and the Prudential Directive has given the programme a new impetus.



Girls holding tree seed balls

To implement the Directive, the Centre has established collaborative partnerships with various stakeholders, including the Ministry of Education, Ministry of Interior, Kenya Forestry Research Institute, schools across the country and communities around the schools. Activities include training in tree growing for senior teachers and school leaders, establishing tree nurseries and planting and donating trees. This ambitious five-year project with CEMASTEА aims to grow about 1.5 million trees. Currently, cooperating schools are preparing nurseries in readiness for planting seeds donated to them by KEFRI through CEMASTEА.

Picture Speak: Tree Planting Across the Nation



Wasichana Wetu Wafaulu Project

A Decade of Improving Education Outcomes for Girls in Kenya

By Thuo Karanja



Lengushugi Ntuturina, Samburu, Community Health Volunteer (CHV) Wasichana Wetu Wafaulu Project

It was a day of celebration as government officers and agencies, teachers, school leaders, NGOs and other stakeholders joined the Education Development Trust (Ed Dev Trust) and a sample of beneficiary students in celebrating a significant milestone—the closure of the successful decade-long implementation of the *Wasichana Wetu Wafaulu* (Let our Girls Succeed) Project. The celebration took place at KICD headquarters on 26th April, 2023. The project, part of the Girls Education Challenge (GEC) Programme, was implemented in partnership with the Ministry of Education, the Ministry of Health and the Teachers Service Commission. It aimed to transform girls' lives and times, especially those in vulnerable contexts. After ten years of successful intervention implementation, EDT invited education stakeholders to celebrate the project's achievements and contributions to improving education outcomes. During the event, EDT also took the opportunity to disseminate the project's impact results, lessons learnt and recommendations, including propositions on how to better mobilise within and outside the education sub-sector.

Numbers Do not Lie

The project has a unique 360 degrees holistic model to ensure no girl was left behind. This model included: **Learning** support, with 160,000 girls benefitting from solar lighting, reading lamps, desks and STEM kits distributed to 470 schools. Teaching support with over 6000 teachers reached through the school-based coaching-led model, and 1000 teachers participated in school-based leadership mentorship programmes. Life -Skills Mentorship with over 81,198 girls engaged in community girls clubs to build self-confidence and esteem and provide dignity packs and referrals for the most vulnerable girls to specialised social services. Economic support with over 5000 girls and 500 boys reached with school and TVET scholarships and 2443 households supported with monthly stipends. Other economic interventions included giving startup capital to TVET graduates (173) and community income-generating projects (270). The project also reached 71 506 parents and caregivers through Households and Community health volunteers

(CHVs), linking schools and communities with programmes on developing social accountability and skills on challenging perceptions of girls' education.

CEMASTEA was among the project's numerous collaborating partners. The Centre supported teachers and school leaders participating in the project by training them on effective gender-responsive STEM teaching strategies and practical school leadership skills.

Project activities and successes

The project supported 70,540 highly marginalised girls living in arid and semi-arid lands (ASAL) and slum areas in Kenya. It gave primary school girls the qualifications, skills and confidence necessary to transition to a productive next phase of life successfully. Some key achievements included improved learning, enrollment, attendance (for both teachers and learners) and transition; improved self-efficacy, aspirations and life skills; improved teaching quality and leadership; and system-level changes and sustainability. In particular, the improved teaching quality led to most girls transitioning to secondary-level education and improved literacy and numeracy skills. Some of the girls were also allowed to attend higher-performing schools. At the same time, other girls were also supported to transition to alternative pathways focused on employment and technical and vocational education and training (TVET) to ensure that no girl is left behind.

During the celebrations, some of the project beneficiaries, including Abigail Iyese from Nairobi's Kayole slums, Lovida Awino Okoth from Nairobi Soweto Slums and Rose Wanjiru from Wamba in Samburu gave moving testimonies of resilience, determination and triumph amidst seemingly insurmountable challenges. These were stories of moving from unending, challenging, and hopeless situations to how the project changed their education pathways and outlook to life through the multi-pronged interventions focusing on their education, health, economic crisis and self-esteem. Most of them expressed confidence that they were on a pathway to greatness!

The Chief Guest during the celebration was Dr. Belio Kipsang CBS, Principal Secretary,

State Department of Basic Education, MoE. Other guests included Dr Christine Wambugu, representing the Ministry of Health; Richard King, Ed Dev Trust Regional Director, Sub-Saharan Africa; Janet Vijedi of TSC; Rose Muraya, Ed Dev Trust Team Leader; Thuo Karanja, representing CEO CEMASTE; Ms Zainab Dhanani, Girls Education Challenge Fund Manager among other dignitaries.

Most of the speakers hailed the success of the project and its unique approach of having one goal: *the success of the girl child in vulnerable contexts* and using various related interventions to seek sustainable solutions. The project was also lauded for the multi-stakeholder approach and collaboration inside and outside of government, bringing in their expertise and areas of strength, leading to the project's overall success. There was a call to action in scaling and replicating the project to reach more girls and boys, with many feeling that the intervention for the success of the girl child would even be more impactful if there were alternate interventions also for the boy child. Hence the call for 'Watoto Wetu Wafualu' (Let Our Children Succeed). In the future, Ed Dev Trust, through its Mr King, expressed interest and remains committed to participating in programmes focusing on girls' education, policy support, equity and foundational learning, STEM, and transition.



On Top of the World

Faith Kipyegon Breaks Three World Records in a Row

By Thuo Karanja

Kenya is a renowned super house for sports, a fact well manifested in athletics, where our gallant men and women have become trailblazers and continue to break one record after another.

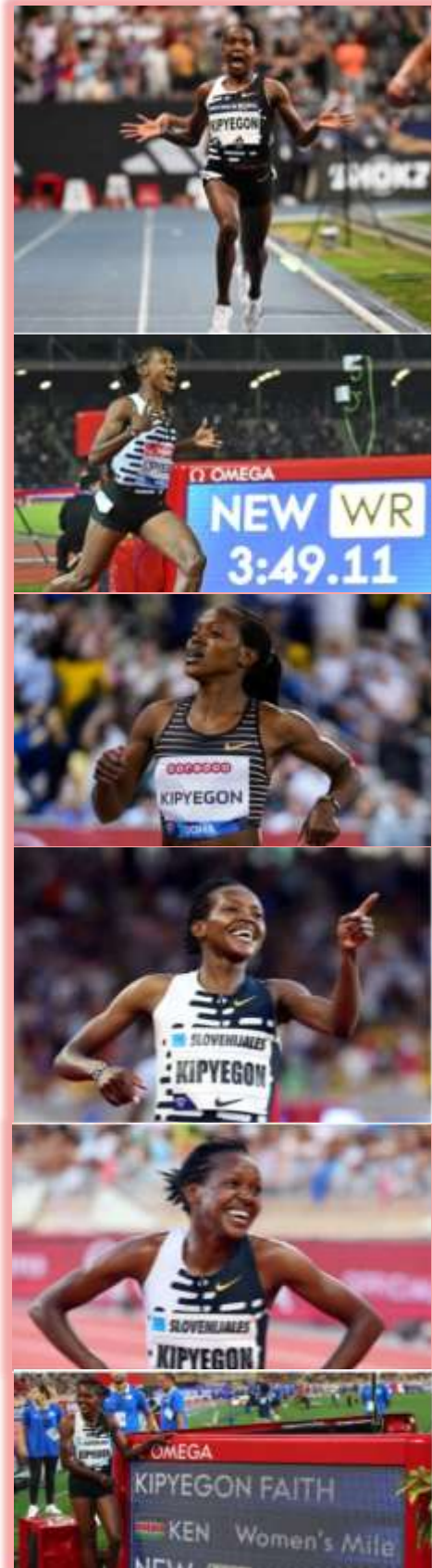
One of the recent causes of celebration is the world-breaking feats of Faith Kipyegon, who, within 50 days, broke three world records! The latest was the *Women's One Mile* in Monaco Diamond League, where she obliterated a whopping four seconds from the last record of four years by Sifan Hassan of Dutch to set the New World Record at 4:07:64. The other World records Faith has broken this year (2023) include the 1500m with a time of 3:49.11 at the Florence Diamond League, Italy in June 2nd and the 5000m with a time of 14:05.20 at the Paris Diamond League, France in June 9th.

Faith's feat at Monaco was noted worldwide, with numerous sports and media outlets reporting on the hat-trick. Kenyans, who have come to associate the wins with her big smile and, on most occasions, the stunned surprises on her face, hailed and celebrated this significant milestone. President William Ruto, celebrating Kipyegon for breaking the Women's One Mile World Record, tweeted;

"Another World record has fallen. Faith Kipyegon's peerless talent, supreme tenacity and tremendous athleticism have lit up the world again, this time in the 1-Mile Monaco Diamond League,"

Faith inspires many upcoming athletes, both girls and boys. Winning such races takes hard work and discipline during training and listening to tacticians and coaches' counsel. Arts and Sports Science is one of the pathways in Kenya's Competency-Based Curriculum at senior schools. Learning areas in sports science will include Physical Education, Human Physiology, Anatomy, Nutrition and Sports Ethics. The pathways allow learners to choose a field that aligns with their interests and aspirations, thus providing them with specialised skills and knowledge.

There are many careers in sports, including those of coaching and training, sports medicine, physiotherapy and psychology, sports journalism and photography, sports agency, and brand and events management. Indeed, getting Faith and other sportspeople to such performance levels takes the collaboration of many players and careers in the sports industry. Faith and other successful athletes stand out as shining examples of how one can make a living in sports and all associated jobs. The Arts and Sports pathway at Senior School should help make Kenya a powerhouse in producing more thoroughbred athletes and in training career experts for managing the whole sports ecosystem. At CEMASTEVA, we celebrate Faith.



Aesop's Fables

IT IS EASY TO
PROPOSE
IMPOSSIBLE
REMEDIES.



The Bell and the Cat: Ideas Are Good, But Execution Is Better!

A family of mice had been living in fear because of a Cat. One day, they discussed possible ideas to defeat the cat. After much deliberation, one young mouse got up to suggest an idea. He suggested that they put a bell around the cat's neck so they could hear it when it approached. All the other Mice agreed, apart from one wise, old mouse. The old mouse agreed with the plan in theory but recommended, "Who would put the bell on the Cat?"

The Lesson: It is easy to propose impossible remedies. Having many ideas is suitable for problem-solving, but having ideas that work is even better. It is never good to boast about an idea until you know it will work. Remember, people want straightforward solutions, not more problems.

[12 Lessons from Aesop's Fables: Top Fables With Morals \(imagineforest.com\)](http://imagineforest.com)

Defending Against Cyber Attackers: A Warrior's Tale

By Esther Nyambura



In today's digital age, smartphones have become essential tools for communication and engagement. However, the increased reliance on mobile devices has exposed users to potential

cybersecurity threats. For Pendo, this nightmare scenario unfolded when her smartphone became a gateway for unseen intruders. A seemingly harmless software update prompt enabled an insidious hacker to infiltrate her digital haven, unleashing chaos and compromise.

As we explore her harrowing experience, we gain invaluable insights into cyber threats. As the sun dipped below the horizon, Pendo noticed peculiar changes in her phone's behaviour. as the sun dipped below the horizon. Unfamiliar icons appeared on her home screen, and her battery drained alarmingly. The escalation came when she received frantic calls from friends checking on her, only to discover unauthorised access to her online accounts. Suspicious login attempts on her email and social media accounts left her vulnerable



and violated—an invisible intruder had struck, threatening her digital identity and peace of mind. Pendo immediately disconnected from Wi-Fi and mobile data to limit further damage. She reported the attack to social media app owners and ran a security scan, uncovering lurking malware. Regular updates and strong passwords with two-factor authentication became her fortress against future attacks. Pendo trod cautiously, avoiding untrusted apps and suspicious links. She fortified her home Wi-Fi network and created backups of valuable data, ready for any eventuality. The ultimate defence lay in a factory reset, erasing any remnants of malicious software.

Pendo emerged as a warrior of cyber resilience, armed with knowledge and fortified by preventive measures. Her experience reminds us that no digital haven is immune to cyber-attacks. Yet, with vigilance and proactive steps, we can navigate the treacherous digital realm, safeguarding our phones from malicious hackers.

Use the link below on narrate how your world was turned upside down by a cyber-attack.

<https://ideaboardz.com/for/Defending%20Against%20Cyber%20Attacker>

My Story: The Role of Professional Development in Improving Practice

By Pauline Wamuyu, Biology, Chemistry Teacher, Modogashe Secondary School, Garissa County

I am Pauline Wamuyu, a Biology and Chemistry teacher at Modogashe Secondary School. My school is a county day and boarding school located in Modogashe Town Lagdera Sub County, 170km from Garissa town along the Garissa-Wajir Highway. The school has an enrolment of 179 boys, with 12 posted by the Teachers Service Commission and two employed by the Board of Management. The School Principal is Mr Gitahi Mathu. The school has had an increasing improvement in its overall from a mean of 2.085 (D-) in 2020 to one of 5.240 (C-) in 2021 and 5.551 (C) in 2022.

Working in this region has provided me with immense training and workshop opportunities. I have attended TPAD, SMASSE, SBTSS and SEQIP training and workshops, which have provided opportunities for capacity building in my subject areas. Knowledge and skills from this training have enlightened me on strategies for innovative practices, such as integrating ICT and hands-on activities that continue to make my lessons more engaging, promoting inclusion and extending learning beyond textbooks.

I have downloaded numerous resources in ICT that enable me to prepare better learner-centred, 5E and Inquiry-Based Learning (IBL) lessons. As I guide and facilitate learning, I can now motivate my students' creativity and innovation. I also use the knowledge and skills to supplement the ICT resources with realia and charts. This prevents the distraction caused by the overemphasis on technology. Through the skills and knowledge gained from workshops and SMASSE training, I have made learning more engaging, improving my performance in Biology from 1.284 in 2020 to 7.10 in 2022 and Chemistry from 1.834 in 2020

to 5.20 in 2022. Additionally, two of my students participated in the 2023 Science and Technology fair up to the national level. They were awarded a science kit by the School Equipment Production Unit (SEPU) for being the most innovative presenters from a disadvantaged school in the region.

Despite these positive developments, I usually encounter challenges in planning and executing my lessons. These include constant power outages, poor internet signals, lack of water and inadequate laboratory apparatus and resources. With the support of the school leadership, we have been able



to continue with our teaching duties. Moreover, the people here embrace teamwork and sharing of resources. We practice lesson study and team teaching at the departmental level as recommended in training, workshops and follow-up sessions. I am grateful for the training, knowledge, and skills learnt from seminars and their impact on my classroom practice and continually improving learner outcomes. The positive results motivate me to put more effort into my work and seek more learning opportunities.



What's your story?

Send us an article about your experiences as a teacher: Your participation in professional development training and its impact on your classroom practice. We will consider and publish it on our

'My Story' page in the next issue. Send your article to editorial@cemastea.ac.ke

Book Review

By Esther Nyambura

Unleashing Creativity: Rethinking Education with "Out of Our Minds" By Ken Robinson

In "Out of Our Minds: Learning to be Creative," Ken Robinson, a renowned authority on creativity and innovation, takes us on a captivating journey that challenges conventional education paradigms and celebrates the power of creativity. With an eloquent blend of history, case studies, and practical insights, Robinson urges us to embrace creativity as an indispensable force in every aspect of our lives.

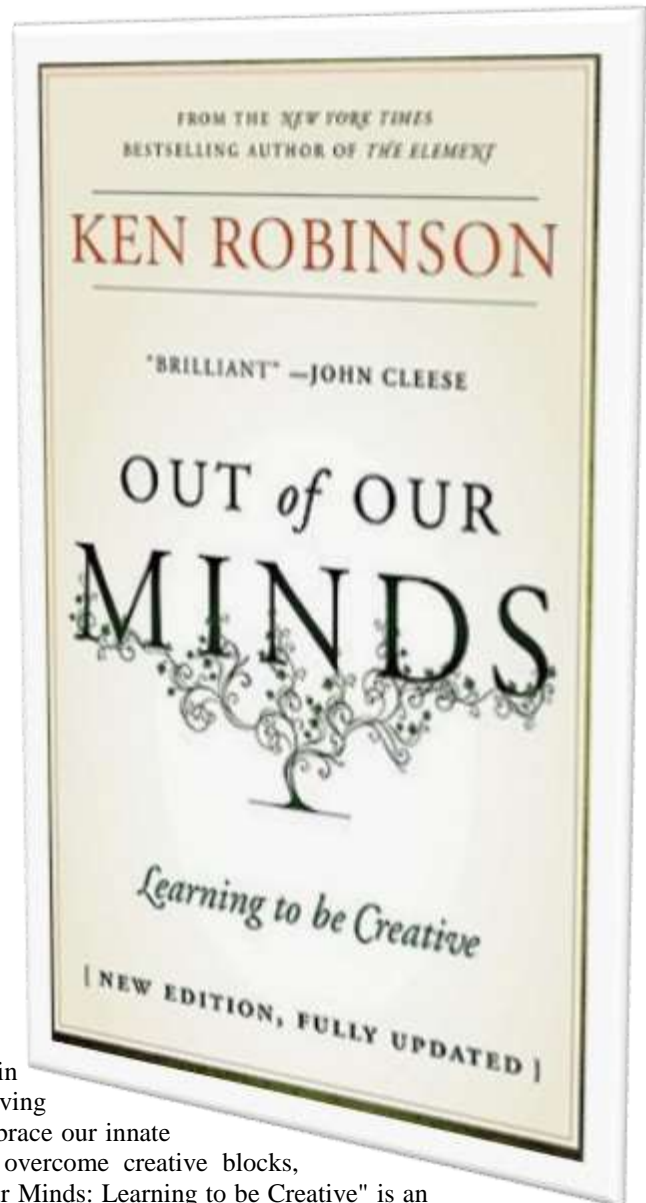
The book begins by tracing the roots of our current education system, revealing its origin in the Industrial Revolution's needs. With a persuasive voice, Robinson argues that this dated model falls short of addressing the demands of our modern world. He advocates for a profound transformation, steering from rigid standardised testing and rote memorisation towards a more fluid and imaginative approach to education.

Drawing upon an array of captivating case studies from education, business, and the arts, Robinson demonstrates the essence of creativity. He emphasises that creativity flourishes in environments that foster diversity, freedom, and flexibility. Throughout the book, Robinson offers inspiring insights on how individuals and organisations can cultivate a culture of creativity and innovation, sparking a renaissance in our collective thinking.

One of the book's most thought-provoking aspects is its resounding message: creativity transcends boundaries. It's not limited to artistic pursuits but is an essential skill in solving complex problems, adapting to change, and thriving in the fast-paced 21st century. Robinson urges us to embrace our innate creative potential and provides practical guidance to overcome creative blocks, unlocking a world of boundless imagination. "Out of Our Minds: Learning to be Creative" is an enlightening read that challenges our preconceptions about education and the paramount role of creativity. As our world evolves rapidly, Robinson's ideas remain profoundly relevant, guiding teachers, trainers, parents, and anyone interested in nurturing creativity and innovation in children and within themselves.

In this age of uncertainty, "Out of Our Minds" serves as a beacon of inspiration, encouraging us to reimagine education and empowering us to harness the limitless power of creativity in shaping a brighter, more imaginative future.

"The world is changing faster than ever before, and we need to keep up. We need a revolution in education to unleash the creativity that will drive progress."





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