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

CEMASTEA INFO

Newsletter

Advancing Technology for a Stronger STEM

Editorial

Feedback: Comments and contributions can be sent to the editor using the email:

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Contributions may be edited for clarity, space or for legal considerations.

We are excited to unveil the July to December 2025 Edition of the CEMASTEA INFO Newsletter, a reflection of our collective journey in harnessing technology, learning, and innovation to build stronger educational foundations for the future.

In this edition, we share inspiring stories and milestones that demonstrate how technology in STEM is reimagining teaching and learning in Kenya and across Africa, bridging gaps, sparking creativity and empowering both teachers and learners to lead and excel in today's digital era.

Africa is at a turning point. The conversations at COMSTEDA 22 and initiatives such as STEMtastic Adventures Africa! made it clear: STEM education is not just about classrooms; it is about continental transformation.

The transformative STEM Bootcamp and the 4th National EdTech Summit hosted by CEMASTEA highlighted the role of digital tools in reshaping classrooms. Technology, when harnessed wisely, bridges gaps, democratizes access, and prepares learners for a digital-first world.

Mathematics remains the language of logic and innovation. Through The Kenya Mathematical Olympiad and the Numeracy for Life Teacher Training Project, laying the groundwork for lifelong success is shown.

CEMASTEA's advocacy for creative learning at the 2025 KEPSHA Conference demonstrates how the Centre champions creative STEM learning empowering educators to lay the groundwork for learners' lifelong success. Girls' mentorship programs in STEM demonstrate that equity and imagination are central to transformation. A future where girls lead in science and innovation is not aspirational—it is essential.

STEM is not only about numbers and code. It is about sustainability. Education must also respond to the climate crisis. Tree-growing initiatives in learning institutions remind us that STEM is not confined to laboratories—it is a tool for environmental stewardship and sustainable futures. The message is simple: STEM is Africa's engine for empowerment, equity, and transformation. The future is not waiting—it is being built in our classrooms today.

As you browse through the newsletter, we invite you to explore the innovations, insights and success stories shaping the future of education. May the experiences shared within these pages inspire continued collaboration, creativity, and commitment to building a brighter, technology-driven learning ecosystem.

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Message from the CEO

As we reflect on the strides made this year, I am proud to highlight the transformative journey our institution has undertaken in reimagining STEM education, EdTech integration and research-driven innovations that support effective classroom practice for Africa's growth and prosperity.

This vision was vividly brought to life during the COMSTEDA 22, and The STEMtastic Adventures Africa! initiative, where we joined hands with partners across Africa to reimagine STEM education as a driver of continental transformation. These dialogues reaffirmed our commitment to equipping learners with the skills and mindsets needed to thrive in a rapidly evolving world.

Technology continues to redefine how we live, work and learn. In education, it has emerged as a powerful enabler: reshaping teaching practices, expanding access, and creating dynamic learning experiences that prepare learners for an increasingly digital world. At CEMASTEA, we believe that integrating technology into learning is not about replacing teachers, but about empowering both teachers and learners to build stronger foundations for the future.

By embedding technology into pedagogy, we create opportunities for learners to engage with knowledge in more profound, more interactive ways as well as developing the problem-solving, critical thinking, and innovation skills essential to thrive in the modern world.

CEMASTEA's commitment to its mission is demonstrated through its continued investment in teacher professional development. Through CEMASTEA's capacity enhancement programs, we continue to support teachers and institutions in navigating the transition to Competency-Based Education (CBE). These efforts ensure that learners are not only knowledgeable but also capable of applying their skills creatively and effectively. We recognize that teachers remain the most critical agents of transformation; when equipped with digital competencies and modern pedagogical tools, they can inspire and empower learners to explore new frontiers in STEM.

Looking ahead, CEMASTEA reaffirms its commitment to advancing technology-enabled learning by fostering innovation, enhancing teacher capacity, and broadening opportunities for all learners through strong local and international collaborations.

We extend our sincere gratitude to all our stakeholders, educators and partners who continue to support this transformative journey. Together, we are empowering minds, shaping futures and building the foundation for a smarter, more connected Africa and world at large.

Happy reading!

Jacinta L. Akatsa, HSC

CEO, CEMASTEA

COMSTEDA 22:
Africa Reimagines STEM Education for Continental Transformation

By Dr. MSichangi & GNjogu

A group photo of COMSTEDA 22 participants

The 22nd Conference on Mathematics, Science and Technology Education in Africa (COMSTEDA 22) concluded successfully in Lilongwe, Malawi. The conference was hosted by the Ministry of Education, Science and Technology of Malawi in collaboration with the Strengthening of Mathematics and Science Education in Africa (SMASE-Africa) Association. The three-day event was held from November 12-14, 2025 at the Bingu International Conference Centre. The conference brought together education stakeholders from 18 African countries and beyond, under the theme: "Reimagining STEM for a Pan-African Future: Bridging Education, Innovation, and Sustainable Development Towards Agenda 2063". One hundred and fourty six (146) presentations were made at the conference.

From Technology Consumers to Innovators

Malawi's Minister of Education, Science and Technology, Honorable Bright Msaka, delivered a powerful message at the opening ceremony, urging African states to shift from being consumers of imported technologies to producers of their own innovations through practical and relevant science teaching.

He emphasized that despite progress in promoting STEM learning, Africa remains heavily dependent on foreign-made technologies, a situation that limits industrial growth and innovation on the continent.

"We must move away from teaching mundane subjects like dissecting a frog to opening up a mobile phone and seeing how it functions. STEM education must address Africa's needs today and tomorrow, If you look around your home, very few gadgets are designed or made on this continent. That must change. We would like to see a television made in Zambia or a mobile phone made in Mozambique," Malawi's Minister of Education, Science and Technology, Honorable Bright Msaka

Decolonizing STEM Education for African Solutions

The conference strongly advocated for the decolonization of STEM education, urging African governments to prioritize skills that help solve real-life challenges and drive socio-economic transformation in line with Agenda 2063, the African Union's vision for a self-reliant and industrialized continent.

Professor Benson Banda, Director of Zambia's National Science Centre and President of SMASE-Africa, commended Malawi for hosting what he described as a "progressive and inclusive" gathering. "*Africa must not only develop technology, it must invent it. Through innovation and collaboration, we will build the Africa we want*," Professor Banda declared.

The conference emphasized that African scientists are increasingly producing world-class research and innovations, but stronger policy and institutional support are needed to help scale up their work and translate research into practical applications.

Prof. Benson Banda addressing participants

Record Participation and Research Excellence

COMSTEDA 22 saw exceptional participation, with 146 presentations being made at the conference. These papers, presented by delegates from across Africa and international partners, addressed critical issues in STEM education from early learning to tertiary levels, offering homegrown solutions to African challenges. The conference featured a keynote address by Associate Professor Lisnet Mwadzaangati from the University of Malawi, a distinguished mathematics education researcher whose work spans geometric reasoning, teacher professional development, and gender equity in mathematics education. Her insights set the tone for three days of rigorous academic exchange and innovative thinking.

Five Critical Strands Shaping Africa's STEM Future

Discussions were organized around five sub-themes: Decolonizing STEM Curricula focused on integrating African knowledge systems and sustainable practices to make education culturally relevant and empowering for African learners, moving beyond colonial-era teaching methods. Pan-African Innovation Hubs explored leveraging technology and entrepreneurship to address continental challenges such as food security and healthcare while nurturing youth-led startups and digital transformation. Gender Equity in STEM addressed systemic barriers preventing women and girls from fully participating in STEM fields, with discussions on policy reforms, mentorship programs, and inclusive pedagogies. STEM for Climate Resilience examined how STEM education and innovation can develop climate-smart agriculture, renewable energy systems, and disaster-resilient infrastructure crucial for Africa's environmental sustainability and Policy Harmonization and Cross-Border Collaboration focused on creating continental frameworks for aligning national STEM policies, funding mechanisms, and research priorities to accelerate regional integration and prosperity.

Empowering Young Women in STEM

The conference highlighted the critical importance of encouraging girls to pursue science subjects. Among the young participants was Jasmine Osman, a student at Jalira Girls Secondary School in Rumphi, who said the event deepened her passion for science. "*Here I've been taught the process of the excretory system, and seeing a real diagram helped me understand it better than before*," said Osman. *"Girls should also pursue science subjects because in our society they are often seen as having less power and intelligence. By taking science, we can prove that wrong and inspire other girls to follow."* Her sentiments echoed the conference's strong emphasis on breaking down gender barriers in STEM fields and empowering women and girls as leaders in Africa's sustainable future.

Practical Learning Through Educational Site Visits

A unique feature of COMSTEDA 22 was the organized site visits to Nalikule College of Education and Mlodza Secondary School, where delegates observed firsthand innovative STEM teaching practices and educational exhibitions. These practical sessions provided tangible examples of how African educators are making science education more hands-on, relevant, and transformative, moving away from purely theoretical approaches to experiential learning that addresses real-world challenges.

Competence-Based Education for Real-World Impact

The conference emphasized the critical role of competence-based curricula over rote memorization, aligning with ongoing education reforms across the continent. Malawi's Secretary for Education, Dr. Ken Ndala, stressed the importance of equipping learners not just with knowledge but with skills directly applicable to real-life situations. *"Our learners must be equipped not only with knowledge but also with the competences required to thrive in an ever-changing world,"* education officials emphasized, calling on teachers as frontline ambassadors to translate conference learnings into classroom action and transform classrooms into spaces where learners discover, create, and solve problems.

Closing Communique: Building the Africa We Want

During the closing ceremony, delegates adopted the COMSTEDA 22 communique, that will inform educational practices and policy reforms across member countries, contributing to the realization of Agenda 2063's vision of a prosperous, integrated, and sustainable Africa.

In the closing remarks, SMASE-Africa leadership expressed gratitude to the Government of Malawi for the exceptional hospitality and seamless organization that made the conference a resounding success, noting that Malawi has indeed lived up to its reputation as the Warm Heart of Africa. The Ministry of Education, Ethiopia, announced that it will host COMSTEDA 23 in 2026, marking another milestone in the continental rotation of this important gathering.

Our learners must be equipped not only with knowledge but also with the competences required to thrive in an ever-changing world.

CEMASTEA Enhances Capacity for Competency-Based Education Transition

By LMakanda & AMumbi

The implementation of CBE is in high gear as Grade 9 learners are expected to join Senior School in January 2026. All Senior Schools will offer the STEM pathway. As a STEM institution charged with capacity development of STEM teachers, CEMASTEA enhanced the capacity of Heads of Departments (HODs) of STEM Subjects in senior school and County Trainers in Applied Sciences and Technical Studies.

Heads of Departments (HODs) of STEM Subjects in Senior School

From left, officiating the opening ceremonies of the capacity-building training: Prof. (Amb) Julius Bitok , Principal Secretary, State Department for Basic Education, at CEMASTEA, Karen; Dr. Elyas Abdi Jillaow, Director General in MoE, in Nakuru and Dr. William Sugut, Head of the Directorate of Secondary Education, in Kakamega.

The roles of Heads of Departments in senior School include: Curriculum and Instructional Leadership, Teacher Management and Development and Departmental Administration and Resource Management. Therefore, they are key in ensuring success of learners pursuing the STEM pathway. CEMASTEA already enhanced the capacity of all the Senior School Principals on the CBE and more specifically on the STEM pathway. The HoDs with the support of the school principals will therefore ensure successful implementation of the CBE.

The theme of the training was: *Enhancing the Capacity of STEM Heads of Departments to Manage Transition to Competency-Based Education.*

The National INSET for key trainers was conducted from Monday 27th to Thursday 30th October 2025 in three cohorts. Prof. Julius Bitok, Principal Secretary, State Department for Basic Education, officiated the opening ceremony of the capacity-building workshop at CEMASTEA, Karen. In Nakuru, Dr. Elyas Abdi Jillaow, Director General in the Ministry of Education, presided over the official opening, while Dr. William Sugut, Head of the Directorate of Secondary Education, served as the Chief Guest in Kakamega.

Participants engaged in various activities during the training

County Trainers in Applied Sciences and Technical studies

CEMASTEA from November 10 - 13, 2025 hosted the final cohort of county trainers in Applied Sciences and Technical studies in preparations for the rollout of Competency Based Education (CBE) in senior school. The training held built on earlier sessions for county trainers in Sciences and Mathematics.

Participants engaged in demonstrating Inquiry Based Learning in STEM by classifying household substances as acids and bases using locally available materials.

The training ensured comprehensive coverage of all tracks within the STEM pathway, equipping trainers with the skills needed to guide Heads of Department in readiness for the transition to Senior School in January 2026 with all senior schools set to offer the STEM pathway.

Madam Gladys Masai, Ag. Director of STEM Research & Innovation, CEMASTEA, representing the CEO, Mr. John Livingstone Makanda, Coordinator Secondary Programme, CEMASTEA

During the training the CEO CEMASTEA, Mrs. Jacinta Akatsa represented by Mrs. Gladys Masai, Director of STEM Research & Innovation at CEMASTEA, urged teachers to embrace their roles as instructional leaders, mentors and change agents. She emphasized the importance of modeling best practices, fostering collaboration and ensuring the effective delivery of Competency Based Education. Mr. John Livingstone Makanda, Coordinator of the Senior School Training Programmes at CEMASTEA, encouraged participants to transform their schools into hubs of innovation where learners are not only taught but also empowered to think critically, create and solve real world problems. He reaffirmed CEMASTEA's strong commitment to supporting the training.

The county trainers cascaded the training to the HoD's in STEM from 24th to 27th November 2025.

The Heads of Department trained will champion the implementation of the CBE in the STEM pathway in Senior Schools. They will among other roles mentor the teachers and learners & guide them along the careers in STEM.

This initiative underscores CEMASTEA's commitment to building strong leadership structures in senior schools, ensuring the STEM pathway is implemented successfully and sustainably.

"Take full advantage of the program to gain the knowledge and mindset needed to guide senior school learners". Madam Rahab Chiira, workshop coordinator

STEMtastic Adventures Africa!
Igniting the Spark for STEM Transformation

By: TKaranja and KMakoba

When the gates of the CEMASTEA swung open on the morning of 22 July 2025, the campus pulsated with the rhythm of possibility. Teachers, innovators, policymakers, and learners from over 20 African countries converged, united by a shared belief that the future of Africa depends on the creative power of its youth. The STEMtastic Adventures! The Africa 2025 Conference, affectionately referred to as 'STEMSTATIC' by participants, was not just another academic gathering. It was a four-day celebration of curiosity, innovation, and collaboration —a living laboratory where ideas took shape, experiments came to life, and educators reimagined classrooms as hubs of discovery.

Under the theme *'Empowering Africa's Learners for a Sustainable Future through STEM,'* the conference examined how STEM can catalyze Africa's transformation. The event was co-hosted by CEMASTEA, the mEducation Alliance, and AUDA-NEPAD, with backing from regional ministries, research institutions, and development partners. The conference featured high-level policy dialogues that united education ministries, NGOs, and private sector representatives. Discussions centred on how national education systems can incorporate practical STEM learning into curriculum reform, teacher training, and infrastructure development. Ten thematic tracks, ranging from AI and Robotics in Education to Green and Renewable Technologies, Gender and Inclusion in STEM, and Integrating Indigenous Knowledge Systems, provided participants with an immersive glimpse into the future of learning. Exhibits in the STEM Village bustled with activity as students and other thematic exhibitors showcased solar-powered models, water purification systems, and innovative agricultural devices.

A group photo with the delegates during the STEMTASTIC Adventures and the (2nd R) CS Education Mr. Julius Ogamba and other delegates at the CEMASTEA Booth during the STEMTASTICS Adventures at CEMASTEA

Opening Plenary: Igniting Africa's STEM Renaissance

The symposium opened with a high-level plenary session graced by Mrs. Jacinta Akatsa, CEO of CEMASTEA; Dr. Barbara Glover, Program Officer, Integrated Vector Management Programme (AUDA-NEPAD); and Mr. Anthony Bloome, Executive Director of the mEducation Alliance. In her welcoming remarks, Mrs. Akatsa reaffirmed CEMASTEA's commitment to advancing STEM education through innovation, capacity building, and collaboration. The session, moderated by Ms. Mary Effie Akinyi, Director, Africa Region & Global Engagement (mEducation Alliance), set an energetic tone for the symposium. Participants were treated to entertainment and networking opportunities before breaking into thematic workshops and visiting the lively STEM Education Village.

Education Transformation and Digital Public Infrastructure

One of the symposium's early highlights was the Education Transformation in Malawi presentation, where the Minister of Education shared the country's bold plan to double literacy levels, expand electricity access, and improve higher education enrolment. The Spix Foundation followed with the launch of RESPECT, Africa's first education-focused Digital Public Infrastructure. AUDA-NEPAD also presented the African EdTech 2030 Vision and Policy Framework, calling for greater investment in digital education, teacher capacity, and policy harmonization to foster inclusive, resilient, and future-ready learning systems across Africa.

Empowering Learners and Educators Through Innovation

The second day featured sessions on inclusion, gender equity, and youth empowerment through STEM. Organizations such as FAWE Kenya, IEEE REACH, Technovation, and Young Scientists Kenya (YSK) shared inspiring models for gender-responsive education, mentorship, and experiential learning. FAWE Kenya showcased how their Tuseme model and Gender-Responsive Pedagogy are transforming the lives of girls and learners with disabilities. Meanwhile, GRACE Initiative presented community-based innovation hubs where young learners design prototypes addressing local challenges—demonstrating that Africa's next generation of inventors is already taking shape.

STEM in the Wild: Learning Beyond the Classroom

One of the most memorable experiences of the symposium was the "STEM in the Wild" learning expedition at the Ololua Nature Reserve in Karen, Nairobi. This outdoor experience immersed participants in the practical application of STEM principles in a natural environment. Guided by environmental educators and CEMASTEA facilitators, delegates explored ecological systems, biodiversity, and sustainable resource management through a scientific lens. Activities included measuring stream pH, identifying flora, and mapping tree species using GPS. The exercise illustrated how STEM connects with environmental stewardship and climate education, aligning with the symposium's emphasis on STEM for Sustainability.

Policy and Practice: Building Resilient STEM Systems

On the final day, participants explored the policy-practice nexus through a continental panel featuring delegates from Kenya, Ghana, Liberia, Malawi, The Gambia, and Namibia. Discussions focused on how countries are integrating STEM into national education systems, developing STEM model centers, and aligning curricula with industry needs. Environmental education sessions from Maasai Mara University and William R. Tolbert Baptist University emphasized community-driven conservation and green innovation.

AI and EdTech for Inclusion

Emerging technologies and AI-driven education were another defining feature of the symposium. Solutions like Juza AI and SolarSPELL showcased how offline, solar-powered platforms are revolutionizing learning in low-connectivity areas. Initiatives like Maurya EduTech, CodeYetu, and STEMulator further highlighted Africa's EdTech creativity—transforming learners from content consumers into creators and innovators. The guiding philosophy, "AI personalizes, the teacher humanizes," resonated throughout, emphasizing the central role of teachers.

The symposium reaffirmed that technology is an indispensable catalyst for strengthening education systems across Africa. It showcased how digital innovation is bridging learning gaps, amplifying creativity and enabling inclusive access to quality education. Through engaging presentations and a wide range of exhibitions, participants witnessed the transformative potential of technology, both in shaping resilient learning ecosystems and in laying the firm foundations for the future of education.

Teacher Empowerment and the Future of STEM

The closing session, led by Egerton University, focused on teacher empowerment as the cornerstone of STEM reform. Presenters called for closer collaboration between universities and Teacher Professional Development Centres (TPDCs) to align training with real classroom needs. By promoting teacher agency, technology integration, and peer collaboration, educators can be transformed into innovators and leaders.

A Vision for a STEM-Driven Africa

The sense of community here is incredible; we're going back home inspired to mentor girls in robotics and show them that science is for everyone." Ms Ruth Tembo is a STEM teacher from Malawi.

The STEMTASTIC Symposium 2024 reaffirmed that Africa stands at the threshold of a new era in STEM education. From policy innovation to classroom practice and from digital infrastructure to environmental action, the conversations and partnerships formed at CEMASTEA promise to drive transformative change. CEMASTEA remains steadfast in championing this transformation—nurturing teachers, inspiring learners, and leading Africa toward a future where STEM education powers inclusive growth, innovation, and environmental stewardship. Education Cabinet Secretary Julius Ogamba Migos emphasized the importance of aligning STEM with the Competency-Based Curriculum (CBC). "The skills that will define the next generation, from digital design to robotics, renewable energy, and biotechnology, must be taught not as theories but as experiences. We want a generation that does not wait for solutions from abroad, but designs them here in Africa."

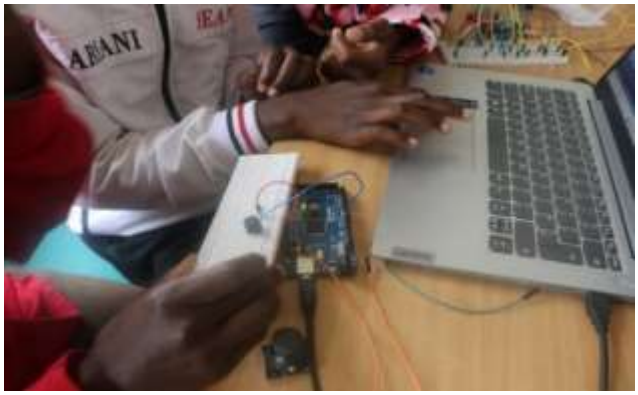
Group photos of some conference participants

The conference drew over 600 participants from 30 different nationalities, including 18 delegations from ministries of education, 90 organizations, and 150 presentations and exhibitions, all offering unique STEM perspectives and innovations. For many attendees, it was an engaging occasion to interact with peers across the continent in an open and collaborative environment. During the closing ceremony, delegates adopted a joint communiqué outlining their shared commitment to making STEM more inclusive, strengthening teachers' capacity, scaling innovations, promoting context-relevant, learner-centred pedagogies, and achieving gender parity. They also called for enhanced collaboration among governments, schools, institutions of higher education, and industry. Additionally, they advocated for the institutionalization of STEMtastic Adventures! Africa as a recurring Pan-African platform. Ghana was identified as the next destination for STEMtastic Adventures! Africa.

As the sun set behind Ngong Hills, the message of the conference was clear: STEM is not just about equations and experiments; it is about empowerment, innovation, and imagination. Clearly, STEMtastic 2025 had done more than showcase innovations; it had sparked a movement.

Transformative STEM Bootcamps: Equipping Learners with Future-Ready Tech Skills

By KMakoba, AMumbi & DOrero



CEMASTEA in collaboration with other tech institutions including Modcom Institute of Technology, I-Start, STEAM Interactive, Linux Learning Centre and Robotics Institute of Kenya provided expert facilitation ensuring learners received practical exposure to real-world applications of technology.

CEMASTEA, in August 11th to 15th and November 17th to 21st 2025, successfully hosted transformative week-long STEM Bootcamps for learners from junior school to university level to explore exciting and comprehensive programming fundamentals and emerging technologies, in Creative Coding, Robotics (EV3 & SPIKE), Arduino & IoT, Mobile App Development, Linux Essentials, Data Science Programming, Drone Technology and 3D Modelling, Design & Printing.

The STEM Bootcamps aimed at igniting young minds and preparing them for the future of technology, They engaged in hands-on projects designed to spark creativity, problem-solving, and collaboration, ensuring practical application of STEM concepts.

Learners during the various sessions with different projects during the Boot Camp

Voices of Inspiration

From left: Mr. Stephen Mogoba, Director Quality Assurance and Standards, MoE, Mrs. Jacinta L. Akatsa, C.E.O CEMASTEA.

Mr. Stephen Mogoba – Director Quality Assurance and Standards at the Ministry of Education, attending the Boot Camp in August, urged learners to 'ignite their minds' and become problem solvers. He emphasized the importance of sustainability and proposed that such Boot Camps be held on a termly basis. Mr Mogoba also advocated for collaboration with NITA to enable certification, aligning with the Basic Education Curriculum Framework (BECF), which supports dual certification, academic and skills-based. Quoting Marie Curie and Steve Jobs, Mr. Mogoba inspired learners to embrace curiosity and innovation: "Nothing in life is to be feared, it is only to be understood." "The people who are crazy enough to think they can change the world are the ones who actually do."

"There is the need to ignite young minds early, fostering a growth mindset and continuous skill acquisition", Mr. Kizito Makoba STEM Coordinator at CEMASTEA

Praising the learners' enthusiasm and innovative spirit, CEO, CEMASTEA, Mrs. Jacinta Akatsa, emphasized the importance of nurturing prototypes through intellectual property registration and decentralizing future bootcamps to reach more counties. *"Let's keep on learning from each other and we'll go further as individuals, institutions and as a country,"* she remarked. Mrs. Akatsa highlighted the importance of nurturing innovation from a young age and promised continuity through institutionalized programs. While appreciating parents and partners for their trust and support, she called for collaborative support to help learners scale their ideas.

Learner Experiences

The Boot camp spotlighted a range of innovative student-led projects that demonstrated both creativity and technical skills. Among the initiatives was an Earth Rover developed by Obadia and his team, designed to measure soil pH, humidity and water levels to enhance seedling distribution across wider regions. Masati and his group created a mobile application to support local football teams through fundraising, with the broader goal of elevating the sport's standards in Kenya.

Bethany and her team engineered a soil moisture sensor that alerts users when plants require watering, promoting more innovative irrigation practices. Ethan, a drone technology participant, enjoyed the practical sessions and the thrill of building drones. Wambui, who explored Robotics and Arduino, celebrated learning how to program robots to detect obstacles and change direction. Joab and his peers harnessed the MIT App Inventor to build functional mobile apps, showcasing the potential of young minds to turn ideas into impactful digital solutions. These projects reflected the boot camp's mission to ignite innovation and equip learners with future-ready skills. Mr Makoba Kizito, who was the coordinator of the boot camp, highlighted the potential for learners to join international boot camps and appreciated the Ministry of Education's presence.

Facilitator's pivotal role

Caroline Waithera (EagoBotics) taught Arduino integration and sensor-actuator control. Theophelus Wamuse (i-Start) encouraged early exposure to prototyping and innovation. Stephen Mwanduka (STEAM Interactive) led sessions on scratch coding and electronics using Makey Makey and Microbits. Kelvin Njogu introduced learners to Canva, AI integration and 3D printing. Linus Mwai (Linux Learning Centre) covered Linux software, virtualisation, ethical hacking, and drone building. Cynthia Kipruto (Robotics Institute of Kenya) guided learners through the fundamentals of robotics, integrating mechanical, electrical and software engineering. John Bosco Okumu brought 45 boys from St. Monica Njiru Parish, marking their first participation. He praised the hands-on approach and pledged continued involvement.

A parent representative praised the program, noting that her child returned home with fresh and innovative ideas.

Participants were awarded achievement, facilitation, and recognition certificates, marking their progress and commitment.

Building the Future of STEM

With growing demand and enthusiastic feedback from learners, facilitators and parents, CEMASTEA aims to institutionalise the boot camp and expand its reach. The initiative stands as a beacon of hope for nurturing Kenya's next generation of tech innovators, where curiosity meets creativity and ideas evolve into impactful solutions.The bootcamp's objective was clear: to equip learners with foundational coding, robotics, and digital design skills, foster creativity, and prepare them for future academic and career opportunities. By encouraging collaborative learning and innovation.

CEMASTEA continues to position learners at the fore-front of STEM career pathways-empowering the next generation of problem solvers and innovation.

Building Safe Foundations for Our Children in the Digital Classroom

By ENyambura

The other day, a parent told me about filling out an online school form for her five-year-old. It requested the usual name and date of birth, then asked about health history, photos, and even family contacts. She clicked "Submit" and later wondered, "*Where does all this information go, and who can see it?*"

This simple moment captures the reality of modern learning. From admission to online homework apps and platforms, even our youngest learners leave behind digital footprints. And protecting those footprints is just as vital as keeping them safe in the school playground.

Kenya's Data Protection Act (2019) and guidance from the Office of the Data Protection Commissioner (ODPC) remind us that a child's personal information belongs to them. It should be collected only for clear reasons, stored securely, and shared only with consent. Mismanaging this data can lead to risks such as identity theft, embarrassment, or misuse.

We have seen how breaches can shake families' trust. In the recent global incident in September 2025, hackers targeted a nursery network and threatened to post thousands of children's profiles online. In Kenya, there have been instances where personal information or images of children were shared without proper permission. These stories demonstrate that breaches can occur not only through cyberattacks but also through ordinary, day-to-day practices.

The ODPC advises schools and early learning centres to be transparent about the data they collect, to obtain parents' permission, to retain only what is necessary, and to protect it with robust security measures. Parents can also help by asking schools about their data security practices and discussing good online habits with their children.

Foundational learning is about equipping children with the skills and confidence to thrive. But we must also ensure they are protected in today's digital landscape. By acting together, parents, teachers, and technology providers we can safeguard not just children's information, but also their dignity, safety, and right to learn. Let's commit to building a secure digital foundation where all children can grow and succeed.

The Path to Mathematical Excellence

By MMungai, Amumbi & DOrero

A group photo during the during the second round of the Kenya Mathematics Olympiad

Kenya's commitment to nurturing mathematical excellence reached a new milestone in 2025 through a series of transformative events led by CEMASTEA, in collaboration with the Ministry of Education, the University of Nairobi (UoN) and the Centre for Education in Mathematics and Computing (CEMC) of the University of Waterloo. He emphasized the KMO as a strategic national initiative to strengthen STEM competencies under CBE, essential for innovation and workforce competitiveness. She highlighted that the program, aligned with Vision 2030, and aims to prepare students for international contests while building teamwork, resilience, and innovation capacity.

Round 2 Boot Camp

The second round of the Kenya Mathematics Olympiad (KMO) was hosted at CEMASTEA from 13th to 16th August 2025. A rigorous boot camp that honed learners' problem-solving skills and prepared them for prestigious competitions such as the International Mathematical Olympiad (IMO) and the Pan African Mathematical Olympiad (PAMO). Of the 136 participants, only 24 top-performing students will advance to the final phase of intensive training in December 2025.

The boot camp not only focused on mathematics but also on mentorship, cultural exchange, and the development of soft skills.

"Stay resilient and embrace mathematics as a tool for positive change", Madam Nancy Nui, Dean, Mathematics department at CEMASTEA.

Students were urged to strive for global excellence and apply their skills beyond the classroom. Curiosity, resilience and self-belief were emphasized and were also encouraged to continue practicing while supporting one another in strengthening their mathematical skills.

They were called upon to stay confident, share knowledge and keep refining their skills to inspire others. The teachers were commended for their dedication.

Kenya's growing presence in international competitions reflects the nation's rising mathematical culture.

CEMASTEA's partnerships, the support of Hon. Wesley Korir (Strategic Advisor on Africa Initiatives at CEMC), and sustained national efforts have strengthened Kenya's position in global STEM education. The programme has opened doors to international opportunities, including a full MIT scholarship awarded to a Kenyan participant at IMO 2024 held in the UK.

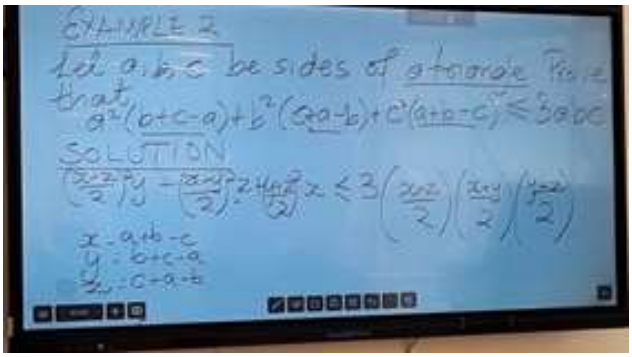
The boot camp also featured inspiring testimonials from past Olympiad participants. Gilbert Ongoro, a finalist at the IMO and Wanjiru Mwangi, a veteran of KMO, PAMO and IMO, shared their journeys, emphasising consistency, curiosity and the joy of solving problems. Michelle (Grade 9, Timiza School), Halima (Form IV, Mama Ngina Girls'), Kalusa (Nyang'ori Boys') and Kazungu (Annestar Boys' High School) expressed gratitude for their KMO experience, highlighting the critical thinking and problem-solving skills they gained. In other related news, Kenya proudly flagged off its delegation to the 66th International Mathematical Olympiad (IMO), held in July 2025 at the Sunshine Coast, Queensland, Australia. The six-member team, led by Dr James Katende and Mr Martin Mungai, was selected from over 9,000 participants in the 2024 KMO following months of intensive training and mentorship.

Mathematics is foundational to all academic disciplines and highlighted its potential to unlock rewarding career opportunities.

Round 3 Boot Camp

A group photo during the during Round 3 of the Kenya Mathematics Olympiad (KMO), 2025 at CEMASTEA. At the middle, sitted: Dr. Ndegwa Gichuhi, Director Policy at MoE who represented the Director General.

The KMO Round three (3) Boot Camp from 8th –13th December 2025 held at CEMASTEA was designed to strengthen mathematical problem-solving skills to the Finalists in Round two (2) of the Kenya Mathematical Olympiad (KMO) held from 15th August 2025, and prepare them for the upcoming 2026 International Mathematical Olympiad (IMO) and Pan African Mathematics Olympiad (PAMO), where they will have the opportunity to represent the country.



Forty (40) top-performing mathematics students from all regions of Kenya came together for an intensive residential training program. The Boot Camp included rigorous mathematical problem-solving and critical thinking sessions, mentorship and motivational talks from university lecturers and industry experts, preparatory training for international competitions (IMO and PAMO), team building and leadership development activities. Facilitators include expert trainers from CEMASTEA, the University of Nairobi (UoN), and the University of Waterloo (CEMC).

The 40 students were congratulated for their outstanding achievement and celebrated for their achievement as Kenya's top young mathematical minds. The finalists were urged to approach the program with focus and teamwork.

For their strong performance at PAMO and IMO 2025, the students were advised on key strategies including the establishment of math circles and strengthening their community of practice to enhance collaboration and problem-solving skills.

Build on this momentum in preparation for the upcoming international, forum in Shanghai, China. coordinator of the program, Mr. Martin Mungai

The Kenya Mathematical Olympiad (KMO) aims to identify, nurture, and mentor exceptionally talented mathematics students from across Kenya. It provides a platform to develop critical thinking, problem-solving, and analytical reasoning skills essential for STEM-related careers. The program culminates in selecting students to represent Kenya in international competitions such as the Pan African Mathematics Olympiad (PAMO) and the International Mathematical Olympiad (IMO).

As Team Kenya continues to shine, the message is clear: mathematics is not just about numbers it's about thinking deeply, solving creatively, and leading boldly.

NUMERACY FOR LIFE:
Teacher Training for Early Years Education Project

By GKiruja & AMumbi

Some of the designed locally made teaching and learning materials.

In partnership with Echidna Giving, CEMASTEA is implementing the Numeracy for Life (NfL) Teacher Training Project for Early Years Education (EYE).

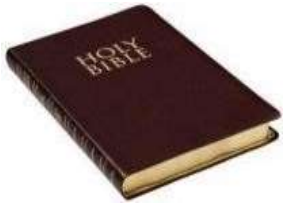
The project's overarching goal is to tackle the critical challenges faced by girls in numeracy during their formative years (Pre-Primary to Grade 3) across 15 marginalized counties in Kenya.

One hundred and twenty (120) Master Trainers Tutors from teacher-training colleges nationwide were trained from 1st December 2025 by CEMASTEA and Echidna Giving. The training program is designed to enhance teachers' capacity to integrate effective numeracy methodologies with gender-responsive pedagogical approaches, ensuring equitable learning opportunities for all children. These national-level trainers will cascade their expertise to 6,000 teachers, thereby strengthening classroom practices at scale.

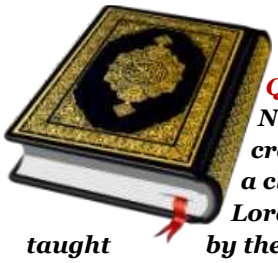
During the opening ceremony, Dr. Elyas Abdi, Director General of the Ministry of Education, State Department for Basic Education, emphasized that as the Competency-Based Curriculum (CBC) continues to be rolled out, foundational literacy and numeracy remain central to quality education.

Dr. Abdi reminded participants that they were embarking on a transformative journey—one that will shape how young learners experience numeracy and how they see themselves as capable problem-solvers, innovators, and future contributors to Kenya's STEM landscape.

Word of Encouragement



Proverbs 22:6: Train up a child in the way he should go, And when he is old he will not depart from it.



Quran 96: 1-5: Read, in the Name of your Lord Who created. Created humans from a clinging clot. Read! And your Lord is the Most Generous. Who taught by the pen. Taught humanity what they knew not

Girls' Mentorship and Support in STEM Education

By: Paul Akoko

Mrs. Jacinta L. Akatsa, CEO CEMASTEA giving a keynote address to participants at Mt. Carmel Girls Secondary School in Nyeri County.

CEMASTEA continues to champion STEM education among learners to enhance 21st-century skills and drive the ongoing education revolution in Kenya and beyond. In line with this mission, the Centre has adopted deliberate and innovative approaches, including mentorship and targeted support for girls in STEM.

On July 18 2025, CEMASTEA's CEO, Mrs Jacinta L. Akatsa, was invited as the Chief Guest to deliver a keynote address at Our Lady of Mount Carmel Girls Secondary School in Karatina, Nyeri County, an invitation she graciously accepted.

The event brought together over two hundred girls, along with parents, guardians, and members of the surrounding community.

In her inspiring speech, Mrs Akatsa spoke about the vital role girls play in shaping the present and future of STEM education at both national and global levels. She congratulated the students who excelled in the 2024 Kenya Certificate of Secondary Education (KCSE) examinations. She noted that though modest in size, the school represented the strength, resilience, and promise of young women determined to excel. "You are a true reflection of what quality education can and should achieve", she remarked.

She went on to highlight that girls pursuing STEM are helping to shape the future and write new chapters in the ongoing industrial revolution, particularly in emerging fields such as the Internet of Things (IoT) and machine learning.

"CEMASTEA is committed to support learners in realizing their full potential and aspirations in STEM",

Mrs. Jacinta L. Akatsa, CEO,

CEMASTEA Hosts 4th Natonal Ed Tech Summit

By Dan Orero

Mrs. Gladys Masai, Director, STEM Research & Innovation, graces the opening of the 4th National EdTech Summit at CEMASTEA, championing transformative learning through technology.

CEMASTEA hosted the 4th National EdTech Summit, convened from 25th to 26th September 2025. CEO CEMASTEA, represented by Director, STEM Research & Innovation, Mrs. Gladys Masai, highlighted CEMASTEA's journey in transforming STEM education through technology and innovation, noting that the summit reflects the institution's commitment to advancing education technology and research-based practices.

Mrs. Masai emphasized that meaningful change in education must be grounded in solid research and data, and CEMASTEA's training equips educators with the latest tools to thrive in the digital age. Beyond classrooms, she added, CEMASTEA runs vibrant boot camps during school holidays, engaging learners in coding, mobile app development, robotics, and challenges in artificial intelligence.

She urged participants to embrace technological opportunities and collaborate to ensure learners receive quality education.

Climate Action: Tree-growing Initiatives in Learning Institutions

By JOyuga and PWanjohi

CEMASTEA has continued to demonstrate its commitment to environmental sustainability by promoting tree nurseries and planting initiatives. Recognizing the urgent need to combat climate change, restore ecosystems, and encourage green learning environments, the Centre has embraced tree planting as a central part of its Corporate Social Responsibility (CSR) and Education for Sustainable Development (ESD) agenda.

In line with Kenya's national tree-growing campaign and the global Sustainable Development Goals (SDGs), tree nursery and planting activities stand as a model for integrating education with environmental action. By nurturing both seedlings and ecological consciousness, CEMASTEA is empowering present and future generations to create a greener, healthier, and more sustainable future.

CEMASTEA donated seedlings towards the World Teachers Day tree planting activity across Counties. The Centre has also conducted monitoring and evaluation exercise in eight schools in Kitui County that received support from the Centre to establish tree nurseries and have cumulatively planted over 20,000 trees.

Tree nurseries established within the schools serve as learning and demonstration projects where staff, teachers, students, and the community converge to gain practical skills on seedling propagation and sustainable land management. These nurseries not only supply quality seedlings for planting but also promote awareness on the importance of afforestation and conservation.

The Seven-Year-Old who Taught Me about Tomorrow

By Allan Chumo

You may know Nelly Cheboi's story—the girl from Mogotio who left Kenya, succeeded in corporate America, and returned home with recycled computers and a dream: that rural kids could become tech wizards. When she won CNN Hero of the Year, I thought, *"That's beautiful,"* and moved on. Inspiration without action fades quickly—until I met a seven-year-old on the STEM bus.

We were running a CEMASTEA boot camp on advanced coding using Scratch. Among the children was a small boy, barely tall enough for the keyboard. While helping others debug, I noticed him using ChatGPT alongside Scratch to build a maze game. Within an hour, he had created functioning code—sprite movement, collision detection, and win conditions—concepts I learned in university. I was amazed… until I asked him *why* his code worked.

"ChatGPT said to do it like this," he replied. Silence followed. He'd built something powerful without understanding it. That moment revealed a crossroads: are we raising users or understanders? Technology gives every child access to immense knowledge—but without critical thinking, it becomes a magic box rather than a learning tool.

AI should amplify, not replace, human thought. Like calculators, it's useful only when the user understands the concepts behind the answers. Children must first struggle—fail, reason, and debug—to form the mental models that make learning meaningful. Once that foundation exists, AI can accelerate discovery and creativity.

From our school visits, we've seen that understanding grows when learners first wrestle with problems before turning to AI for help. Technology should then serve as an amplifier, pushing learning further once concepts are clear.

True learning happens when children create rather than simply consume, when they see how what they are learning connects to their lives and communities.

I've seen a girl who'd never touched a computer create a climate change presentation; a boy who struggled in math excel after discovering variables through coding. These experiences prove that critical thinking and problem-solving skills matter beyond technology.

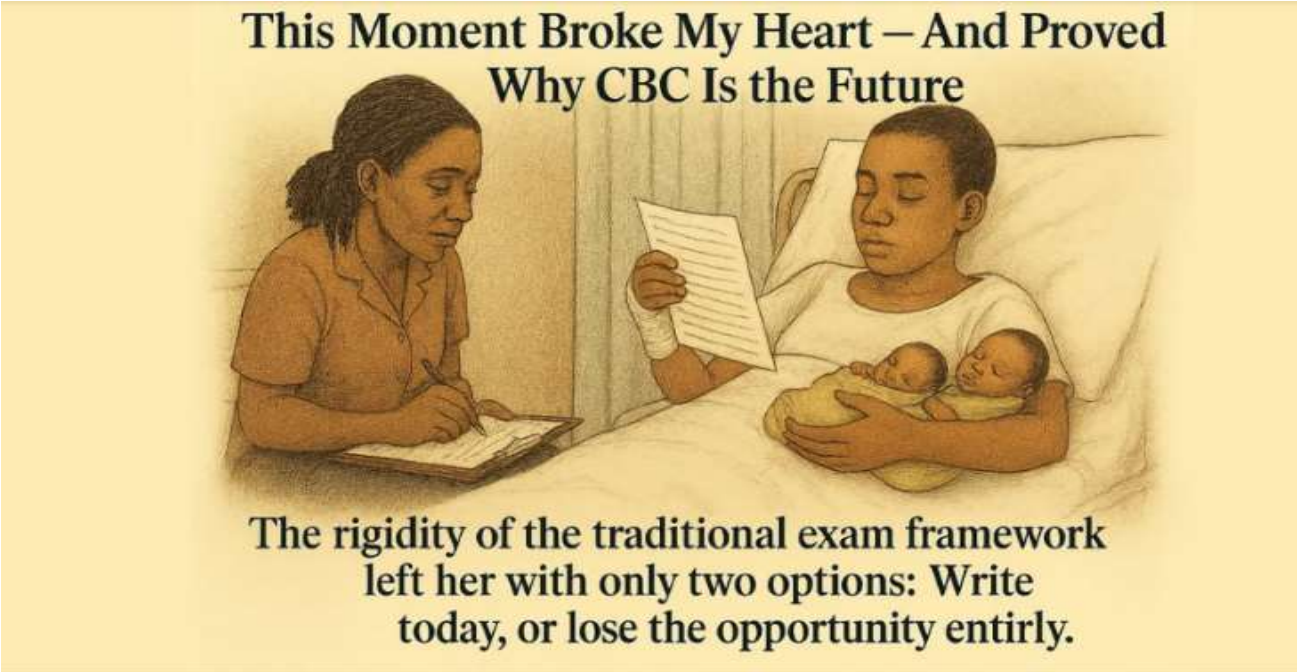
The seven-year-old eventually learned *why* his code worked. Together, we broke it down until he could question, modify, and improve AI's responses. That's the synthesis we need—deep understanding empowered by technology.

We can't educate for the future using methods of the past. Memorization is obsolete in a world where AI can recall everything. True transformation lies in combining hands-on reasoning with intelligent tools. When students in Mogotio think like innovators and use AI wisely, they stand shoulder to shoulder with peers in Nairobi or New York.

Nelly Cheboi's vision wasn't about computers—it was about what they *enable*. Each time I see a child's eyes light up on the STEM bus, I think of her and that seven-year-old. Kenya's children are ready for the future. Our task is to ensure they understand, create, and think critically—so that technology becomes not just impressive, but empowering.

My Testimony

By Clotilda Murambi



A Moment I Will Never Forget — And Why CBE Is the Best Thing That Ever Happened

Her eyes fluttered, each blink a struggle. Weak and exhausted after surgery, she whispered faintly as I leaned close to catch her words. Beside us lay her newborn twins, fragile and breathing softly. With the exam paper in hand, I felt the crushing weight of duty versus compassion. She tried to answer, but her strength was gone. At one point, she pleaded for help.

My heart broke, yet I knew my role—to protect the integrity of a national exam. I wrote only what she dictated, word for word.

That morning, I had been called to the hospital: a candidate had delivered twins by caesarean barely an hour earlier, yet insisted on sitting her exam. The doctor suggested transcription, but the system allowed no flexibility—no rescheduling, no adjustment. It was either write today or lose the chance entirely. In that moment, I wished for Competency Based Assessment.

Under CBA, she could have been assessed later, her performance measured progressively and humanely. CBA recognizes learners as whole human beings, unlike rigid summative exams that demand performance at a fixed hour, regardless of life's realities.

When asked how I resisted helping her academically, I realized this was more than a test of integrity—it was a national lesson.

That hospital room proved why CBA is the right path. Luke 16:10 echoed in me: "Whoever can be trusted with little can also be trusted with much."

I left humbled, convinced that education must honor humanity.

Under CBA, this young mother would have had a fair chance—without breaking her body to prove her worth.

It is a moment I will never forget, and a reminder of why CBE is one of the best things to happen to our education system.

PICTURE SPEAK


A group photo with the PS Education, Prof. (Amb) Julius Bitok during the WAAW Foundation conference at CEMASTEA (L) and (R) a group photo with the CEC's during their induction at CEMASTEA.


The foundational room at CEMASTEA


A group photo with the partners, EDT (L) and Desert Stars (R) during their meetings at CEMASTEA

Mr. Martin Mungai who represented the C.E.O CEMASTEA in issuing the LEGO STEAM Park - Spike Kits and Building Blocks to teachers in Junior schools

The C.E.O CEMASTEA Mrs. Jacinta Akatsa issues a sample certificate to Mr. Geoffrey Omariba, Hospitality Department following a training they undertook at Utalii Collage. The collage appreciated the Department with a cake following the training.

Delegates interacting with CEMASTEA displays at the KEPSHA (Now KECSHA) Conference

CEMASTEA Champions Creative STEM Learning at 2025 KEPSHA Conference

As CBE continues to reshape Kenya's education landscape, CEMASTEA's grassroots efforts remain pivotal in ensuring that no classroom is left behind—regardless of its material circumstances.

The 2025 Kenya Primary School Head Teachers Association (KEPSHA) Annual Conference commenced with a vibrant showcase of innovation and collaboration at the Sheikh Zayed in Mombasa. CEMASTEA's presence at the KEPSHA Conference underscored its ongoing commitment to enhancing teacher capacity nationwide. The Centre has long been a national hub for promoting STEM education through the development of innovative teaching resources, use of locally available materials and practical learning experiences.

At the venue, the Centre did not only exhibit but also held sessions with teachers from across Mombasa County for hands-on sessions on developing teaching and learning materials using everyday resources through locally inspired creativity. The initiative, aligned with the Competency-Based Education (CBE), emphasized sustainability, learner engagement, and contextual relevance in STEM education.

Participants through interactive demonstrations and group activities, were trained how simple items like bottle tops, sticks, cartons, and beads can be re-purposed into effective numeracy teaching tools. The session not only sparked innovation but also reinforced the importance of making learning relatable and enjoyable for learners.

The focus was to empower teachers to use what is around them to make learning fun and meaningful. This approach helps learners relate classroom content to real-life experiences.

The workshop also fostered a spirit of collaboration, encouraging schools to share ideas and co-create low-cost, high-impact learning aids. Teachers proudly displayed their own resourceful creations, many of which reflected environmental consciousness and a strong gr asp of child-centered pedagogy.

From above: Dr Joseph Wambua, Member of the BoG at CEMASTEA is taken through the teaching and learning materials. Teachers from across Mombasa County taken through hands-on sessions on using everyday resources through locally inspired creativity.

Listening with Our eyes: How children speak through symbols

By Winfred Magu

Often, I find myself simply watching my children at work, though to them, it's play. They doodle, colour, and build with intense focus, lost in a world of imagination. Over time, I've come to realise that children are constantly communicating, even in silence. Their language is one of symbols, drawings shaded in multiple colours or a Lego tower built with care, oh, the gestures that reveal both joy and frustration.

Swiss Linguist Ferdinand de Saussure and American philosopher Charles Sanders Peirce taught us through the study of semiotics that meaning is carried in signs and symbols. A symbol is never just an object; it is a message waiting to be understood. Children often communicate their inner worlds long before they can articulate them in words.

I've witnessed this with my own children. The sparkle in their eyes when they finish a drawing. The furrowed brow when an idea won't take shape or the slump of disappointment when a tower of blocks collapses mid-creation. These little but valuable moments offer us a glimpse into their minds and thoughts, telling us what they value, how they feel and how they make sense of their world.

Maria Montessori believed that observation is the key to understanding children. She urged adults to watch quietly, to see before speaking and to let the child show us who they are. Observation, she said, isn't passive but rather a form of listening. When we truly watch, we notice that every action, every choice and every creation is full of meaning.

My children express their love language through drawings, sometimes of family and friends, or of how they feel now. They satisfy their curiosity by arranging their toys, sticks, pegs, or stones neatly in neat patterns. These are not random acts; they are expressions of thoughts and imagination. Peirce describes symbols as bridges between ideas and reality. Through play, art and imitation, children build those bridges to connect their inner worlds with ours.

I have learnt not to rush in with explanations or corrections but to observe with patience, gentleness, and love. I no longer see just a mess of crayons or scattered toys; I see a story unfolding, a narrative of discovery and becoming.

So, the next time you watch children playing, stacking blocks, coloring or humming softly to themselves, pause. Observe, listen with your eyes. Because in those small symbolic acts, they tell you everything about who they are and who they are becoming.

End-of-Year Luncheon:
A Celebration of Togetherness and Achievement

By Ann Mumbi

In keeping with a cherished tradition that unites the CEMASTEA Board of Governors, management, and staff in celebrating milestones and strengthening bonds as the year draws to a close, the End-of-Year Luncheon was held on Friday, 19th December 2025.

The luncheon was more than a shared meal—it was a time to honor the dedication, resilience, and teamwork that defined the year. From groundbreaking innovations to everyday acts of collaboration, every contribution played a vital role in advancing our vision and strengthening the institution's journey forward.

Shared Reflections

The luncheon featured warm speeches, heartfelt tributes, and quiet moments of reflection. marking their first engagement with staff since their appointment, the Board of Governors introduced themselves, and shared perspectives on the year behind us along with their hopes for the year ahead.

CEMASTEA Board of Governors in attendance. Upper row, left to right: Dr. Joseph Wambua, Mr. Yusuf Jillo Karayu, Mrs. Mary Munyingi, Mr. Abdijibar Sanay

Lower row, left to right:Madam Beatrice Atieno, Dr. Florah Fedha, Mr. Edwin Murimi and Mr. Allan Sitima, recipient of the Order of the Burning Spear (C.B.S.)

The CEO offered thoughtful reflections on the Centre's journey—challenges overcome, milestones achieved, and lessons learned—setting the stage for the exciting opportunities to come.

Left: The CEO CEMASTEA, Mrs. Jacinta L. Akatsa addressing staff at the Luncheon. A section of the CEMASTEA staff following the proceedings.

A Legacy of Dedication

The three pillars of dedication rewarded. From left: Mr. Patrick Kogolla, Madam Beatrice Macharia and Mr. Athana Wanjala.

The three retirees were honored with heartfelt tributes that celebrated the legacy each leaves behind—hard work, professional accomplishment, wisdom, and mentorship. Their contributions have shaped not only the Centre's success, but also the lives of countless teachers and learners across the country. Each retiree shared stories from their journey at the Centre—moments of challenge and pride, lessons learned along the way, and memories that will stay with us: shared laughter in the breakroom, late nights ensuring projects were completed, and the quiet, consistent presence that made others feel supported.

Together, they remind us that dedication isn't measured in years alone, but in the lives touched, the trust earned, and the futures shaped. Their stories are not endings, but foundations on which we will continue to build—carrying forward the excellence they modelled, the resilience they nurtured, and the standard of service they set.

The Driving Force Behind STEM

Mr. Patrick Kogolla

Mr. Patrick Kogolla's journey was one of vision, hard work and perseverance. Rising through the ranks to become Director STEM training at the Centre, he carries the institution's memory like a living archive, recalling its milestones and guiding its future. His kindness made him a friend to all, but it was his relentless dedication to STEM that defined his legacy. Believing in the power of science and technology to transform education, he poured his energy into building programs that would outlast him. Nearly every training initiative at the Centre bore his fingerprints, a testament to his instrumental role in shaping its foundation. Serving under various managers, he remained steadfast, driven not by titles but by the mission. For him, STEM was a heartbeat of progress. And Mr. Kogolla, the architect of STEM, whose vision and kindness-built programs that will outlast generations. He rose through hard work, serving under every leader with humility, and leaving behind a legacy of innovation.

The Heart of STEM Outreaches

Transforming duty into passion, Madam Beatrice Macharia carried innovation in her spirit and leadership in her stride. She approached every assignment with passion, infusing creativity into her work and never saw tasks as burdens but as opportunities to serve with heart. Her dedication was not about recognition—it was about ensuring that learning was alive, joyful, and transformative. In the mathematics department, she believed that every equation was a doorway to possibility. Mathematics was more than formulas; it was a language of hope she shared with every child who crossed her path. As a program coordinator, Special Programs, Student Learning, she infused creativity and compassion, worked tirelessly Her leadership inspired colleagues, teachers and students alike, leaving behind a legacy of dedication, innovation, and nurturing care.

Madam Beatrice Macharia

The Steadfast Guard

Mr. Athana Wanjala

Known for his quiet strength and unwavering presence, for decades, Mr. Athana Wanjala was the force that ensured the Centre remained well guarded and secure. His mornings began before dawn, ensuring that every door, gate, was secure and every corner watched. He was the kind of leader who answered every call, whether it was a minor concern or a crisis, with the same calm assurance. His respect for everyone—from the newest recruit to the management, he loyally served. His vigilance made him more than just a head of security; he was a pillar of trust. Vibrant and alert, he understood his assignment not as a job but as a calling, serving not just with duty but with devotion. Wanjala served as dedicating his years to ensuring the institution remained secure and protected, allowing the Centre to thrive.

A Final Toast

To our retirees: Thank you for your years of service, your unwavering commitment, and the memories you leave behind. You will always be part of our family, and your legacy will continue to guide us.

Your stories will remain woven into the very fabric of the institution.

Festive Atmosphere

The luncheon carried a distinctly celebratory feel—delicious food, cheerful company, and that easy sense of togetherness that reminds us why these traditions matter. It was a welcome chance to reconnect with colleagues, rekindle friendships, and form new bonds. Through casual conversations, shared stories, and ideas sparked over a meal, the gathering strengthened the ties that make our institution more than a workplace—it's a community. While this luncheon marks the end of one chapter, it also signals the beginning of another.

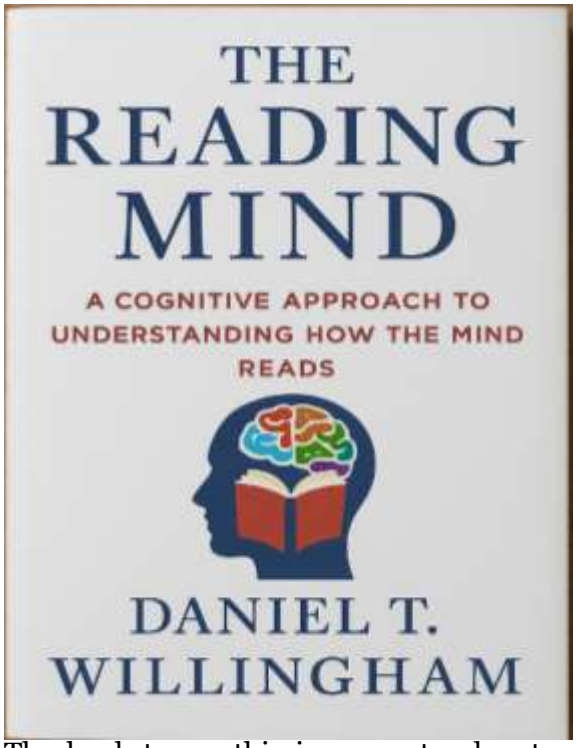
While this luncheon marks the end of one chapter, it also signals the beginning of another. With renewed energy and shared purpose, we look forward to building on our successes and embracing the opportunities that the coming year will bring.

Together, we continue to make our institution not just a place of work, but a community of growth, innovation, and belonging.

BOOK REVIEW:

Cracking the Reading Code: What Teachers Can Learn from *The Reading Mind*

By Esther Nyambura



I've always been fascinated by that "aha!" moment when a child finally cracks the reading code. One day, they are staring at letters as if they were scribbles, and the next, they are stringing sounds together with a grin. That's the mystery Daniel T. Willingham explores in *The Reading Mind: A Cognitive Approach to Understanding How the Mind Reads*.

> ***"Children don't need explicit instruction in vocabulary or syntax; exposure to a community of speakers is enough"***
>
> ***Daniel T. Willingham***

I expected a dense academic text, but Willingham writes with the clarity of a seasoned teacher. He makes it clear that reading isn't innate; unlike speaking, it must be taught and practised, requiring the brain to forge new pathways to turn letters into meaning.

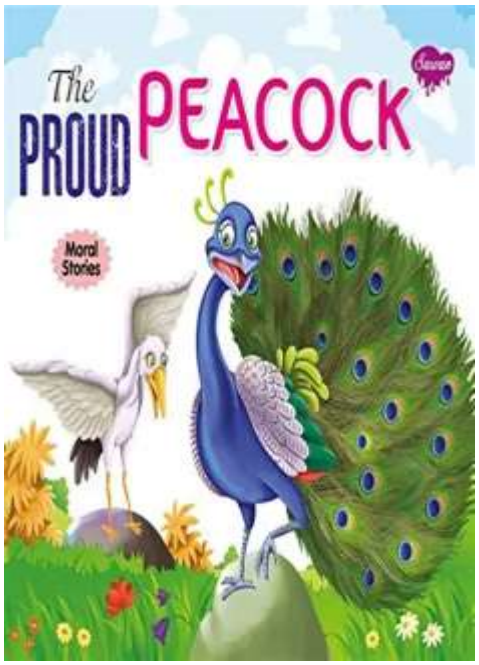
The book traces this journey step by step: recognising letters, decoding words, developing fluency, comprehension, and finally, the joy of reading. Along the way, Willingham busts myths; chief among them, that phonics alone is enough. While phonics is essential, he demonstrates that vocabulary, background knowledge, and meaningful practice are equally crucial for developing confident reading skills.

Reading this, I pictured Early Childhood Development and Education (ECDE) classrooms in Kenya: large classes, multilingual learners, and scarce materials. Willingham doesn't offer ready-made lesson plans, but he explains why certain practices work, such as building background knowledge for comprehension and strengthening fluency.

This thinking aligns well with Competency-Based Education (CBE), which prioritises core skills over content overload. His research supports approaches that frame reading as a competency, focusing on vocabulary, knowledge, and fluency, thereby building a foundation for cross-curricular literacy. While the book doesn't address every local challenge, such as teaching under a tree with only one textbook, the science still guides targeted and effective teaching choices, even in tough settings.

Teachers, headteachers, and parents seeking to understand how children learn to read will find this book invaluable. Rather than scripts, it offers the science behind reading and affirms that understanding this science is key to empowering every child to read and learn.

FABLE: The Proud Peacock and the Patient Turtle



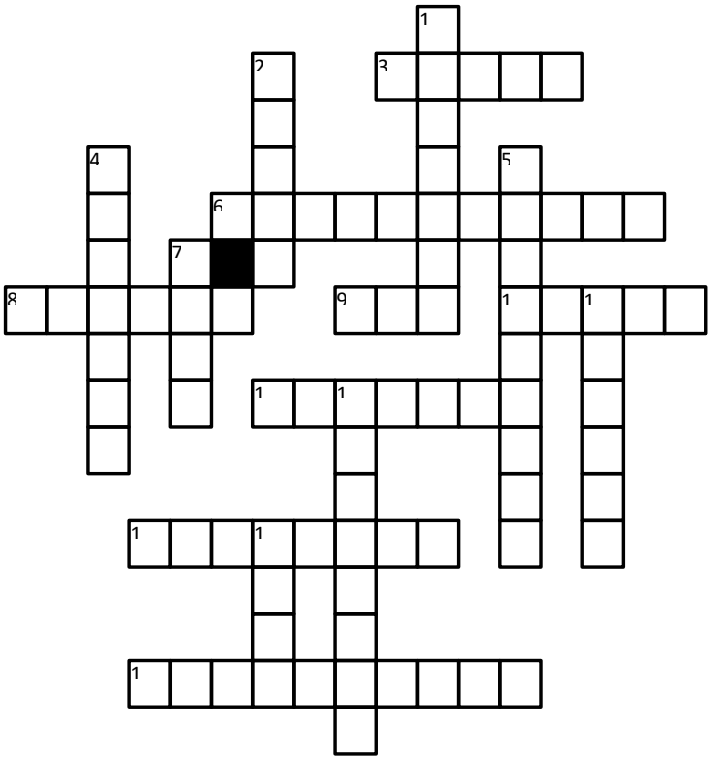
Once upon a time in a peaceful forest, there lived a proud Peacock and a humble Turtle. The Peacock loved to show off his beautiful feathers and boast about his speed, constantly belittling the slow Turtle. "Look at me," said the Peacock, "I am the fastest and the most magnificent in the forest. You are so slow and plain!"

The Turtle, quiet and patient, smiled and said, "Dear Peacock, beauty and speed are gifts, but true strength lies in perseverance."

One day, a great storm swept through the forest, making the paths slippery and dangerous. The Peacock tried to run away swiftly but kept slipping and falling. Meanwhile, the Turtle steadily made his way through the mud and rain, never giving up. When the storm passed, the Peacock was tired and stuck in a muddy ditch, while the Turtle had safely reached his cozy home. The Peacock realized that boasting and pride could not save him, but steady patience and determination did.

Moral of the story: Slow and steady wins the race!

COFFEE BREAK



Across

3. The organ in our body that controls breathing
6. The E in STEM
8. 100 divided by 5
9. The state of matter water vapor is in
10. The state of matter ice is in
12. The biggest planet in our solar system
14. The measurement across the middle of a circle
16. The T in STEM

Down

1. The control center of a cell
2. A living thing that makes its own food
3. The S in STEM
4. The first person to step on the moon
7. Our sun is a ___
8.The state of matter water is in
13. A shape that has five sides
15. The M in STEM


REPUBLIC OF KENYA
Centre for Mathematics, Science and Technology Education in Africa (CEMASTEA)
The Chairman and the entire Board of Governors, Management, and staff wish you a
Merry
Christmas
AND HAPPY NEW YEAR!
May the spirit of the season brighten your life, strengthen your faith, and surround you with love, happiness, and endless blessings.

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