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

CEMASTEA INFO

Newsletter

INSTRUCTIONAL LEADERSHIP

Secondary School Principals receive training on Transition under Curriculum Based Education (CBE)

Editorial

In the ever-evolving landscape of STEM education, instructional leadership stands as a guiding force, shaping the minds that will drive innovation and technological advancement. It is more than just administrative oversight; it is an active, dynamic process that fosters excellence in teaching, nurtures curiosity, and ensures that learners are equipped with the skills necessary to thrive in a world driven by Science, Technology, Engineering, and Mathematics (STEM).

True instructional leadership demands a commitment to continuous improvement—embracing research-based strategies, leveraging emerging technologies, and fostering an inclusive environment where diverse perspectives enrich learning.

CEMASTEA thrives when educators lead with vision, inspiring teachers not only to absorb knowledge but also to apply it creatively to solve real-world problems.

One of the most crucial aspects of instructional leadership is the ability to guide leaders in designing engaging, inquiry-driven curricula that move beyond rote memorization to deeper conceptual understanding. STEM disciplines are inherently exploratory, demanding critical thinking and problem-solving skills that cannot be cultivated through passive learning.

Leaders must champion pedagogical approaches that encourage active participation, collaboration, and innovation. Moreover, instructional leaders must recognize the importance of mentorship—empowering educators, supporting professional development, and creating networks where best practices are shared. By fostering a culture of learning among school leaders, teachers, institutions can ensure that their students receive high-quality education that prepares them for the challenges and opportunities of the future.

At its core, instructional leadership is about impact—creating an environment where both educators and learners are empowered to excel. It is about instilling a lifelong passion for discovery, fostering resilience in problem-solving, and driving the next generation toward meaningful contributions in STEM fields.

In this era of rapid technological progress, the role of instructional leaders extends beyond the classroom. Through different programmes, CEMASTEA advocates for policies that prioritize STEM education, strengthen community partnerships, and ensure that students from all backgrounds have access to cutting-edge resources and opportunities. The Centre champions instructional leadership as the engine that propels STEM institutions toward excellence.

Let’s build a future where STEM education is not just taught but inspired

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Leadership is an ever-evolving position.

-Mike Krzyzewski

Message from the CEO

Welcome to Issue 20 of our Newsletter: ***Instructional Leadership***

At the heart of every great institution lies a powerful engine; instructional leadership—the kind that does not just manage but motivates, mentors, and mobilizes. As we navigate an era defined by rapid technological shifts and evolving educational paradigms, the role of instructional leaders has never been more urgent or more inspiring.

We should always remember that *"A single bracelet does not jingle."* A Congolese proverb meaning that it takes collective effort and teams of committed educators to make true instructional impact.

Instructional leadership goes far beyond oversight as it is about inspiration, empowerment, and transformation. It is also both an art and a science: the art of cultivating vibrant, inquiry-driven classrooms where curiosity thrives and the science of aligning curriculum, pedagogy, and assessment in coherent, inclusive and learner-centered approaches. At its core, instructional leadership is the backbone of school improvement and student success. Instructional leaders are not merely supervisors; they are visionaries, coaches, collaborators, and culture-builders. They champion and foster professional growth while also upholding the highest standards of teaching and learning. Most importantly, they create environments where failure is not feared but embraced as a springboard for innovation and continuous improvement.

At CEMASTEA, we embrace this responsibility with pride and purpose. We are committed to nurturing leaders who ignite minds, promote innovation and champion equity in STEM education. Through ongoing training, mentoring, research and collaborative learning, we aim to build a resilient community of educators who not only keep up with change, but drive it.

We invite every one of you: educators, learners, partners, and supporters to continue being part of this transformational journey and we thank you for being the heart and soul of our progress thus far. Your dedication, creativity, and leadership are what make this institution a beacon of innovation, equity and excellence.

Enjoy the read and keep leading with purpose!

For feedback or contributions, write to us at: ceo@cemastea.ac.ke

Jacinta L. Akatsa, HSC

CEO, CEMASTEA

Empowering Principals for the Grade 9 to 10 Transition under CBC

By Thuo Karanja

As Kenya approaches 2026, a historic shift in the education system is on the horizon. The first cohort of Competency-Based Curriculum (CBC) learners is set to transition from Grade 9 at junior school into Grade 10 at senior school. At the centre of this transformation are school leaders in senior schools. They need to be empowered with knowledge and practical tools to guide their institutions and learners through this transition. In preparation for this significant milestone, the Ministry of Education, in collaboration with CEMASTEA, conducted workshops for senior school principals in April 2025. The aim was to equip the school leaders with the skills and knowledge to build the confidence required to effectively lead this transition. These sessions, held across 47 counties, have revealed the central role of school leaders as change agents at the forefront of CBC implementation in senior schools.

At the heart of the training was a deep dive into the Basic Education Curriculum Framework (BECF),

Elgeyo Marakwet Principals during the training

which underpins the CBC. Principals were introduced to the broader context of Competency-Based Education (CBE), CBC, and Competency-Based Assessment (CBA), engaging in rich discussions about aligning school practices with national education goals. A particular focus was helping them identify how core competencies like critical thinking, self-efficacy, communication, and collaboration manifest in classroom scenarios. Further in, recognizing that principals are the lead supervisors of curriculum delivery, the training sessions emphasized the need to understand and interpret CBC curriculum designs effectively.

Migori County Principals during the training

To complement curriculum mastery, principals were introduced to innovative pedagogies, including Project-Based Learning (PBL), Inquiry-Based Learning (IBL), and the Predict-Observe-Explain (POE) model. ICT integration featured prominently through the TPACK framework, which supports the blending of technology with pedagogy and content knowledge. These strategies transform traditional teaching methods and prepare learners for a dynamic digital future. Practical activities—such as the candle-in-a-jar experiment—demonstrated how experiential learning could be infused into lessons while drawing connections to real-life applications. This hands-on approach modelled learner-centred pedagogy and encouraged principals to think creatively about integrating such practices into their school environments.

Assessment, a cornerstone of Kenyan education, was reimagined through the lens of the Competency-Based Assessment Framework (CBAF). The shift from a purely summative approach to a combination of formative, project-based, and summative assessments signifies a significant transformation in evaluating learner growth. Principals were guided through various tools used in assessment for CBC, including paper formats, the incorporation of ICT in assessments, learner portfolios, the development and utilization of assessment rubrics, and the age and stage-based assessment models that now constitute the foundation of CBC evaluations.

Equally significant was the exploration of the CBC pathways: Arts and Sports Science, Social Sciences, and the STEM route. Principals learned about the infrastructure, staffing, and resource requirements needed to offer these tracks, focusing on subject combinations and their alignment with national development goals. The STEM pathway, in particular, generated robust discussion regarding the availability of skilled teachers and necessary laboratory equipment—concerns that echo the findings from infrastructure audits. The Ministry of Education also took the opportunity to present the latest transition guidelines, clarifying expectations about the movement of Grade 9 learners into Grade 10 and how they should integrate within schools still hosting 8-4-4 learners. Principals were encouraged to visit nearby junior schools to understand CBC in practice and engage more closely with other education stakeholders, including KUCCPS, KICD, and KEMI.

Principals conduct some experiments during the training

Mentorship and career guidance emerged as vital pillars supporting learners during this transition. Principals brainstormed ways to institutionalize mentorship by tapping into alumni networks, engaging professionals across industries, integrating career talks into the curriculum, and partnering with parents and teachers to guide learners toward emerging career opportunities.

Including unconventional careers, such as gerontologists and seismologists, in these discussions highlighted the importance of broadening learners' awareness of future possibilities.

Change management was the final, yet arguably the most critical theme. Drawing on the ADKAR model—Awareness, Desire, Knowledge, Ability, and Reinforcement—principals explored the dynamics of educational change and how to navigate resistance within their schools. They discussed practical strategies for mobilizing resources, retooling staff, and fostering a school culture that is agile, inclusive, and adaptive to CBC reforms.

Feedback from participants showed significant growth in confidence and understanding. For example, in Taita Taveta, awareness of the CBAF increased by nearly 39%, while knowledge of senior school tracks improved by over 26%. Similar trends were observed in other countries, reflecting the effectiveness of these targeted workshops. Principals reported feeling better prepared to handle CBC transition challenges, leading their schools with renewed purpose. They called for more in-depth, sustained training with recommendations to extend workshops beyond three days, increase hands-on sessions, and incorporate microteaching, school visits, and model lesson demonstrations. They also emphasized the need for more structured follow-up support, particularly in mentorship, curriculum implementation, and infrastructural planning.

JS Teachers Training on Virtual Labs & Digital Resources

By: LMakanda & DRasto

Junior School teachers learning how to adopt virtual labs in the teaching and learning.

Adamson Shitole, a Mathematics teacher is actively engaged with a laptop inputting data that connects users to online tools designed to teach young learners the *Pythagorean theorem* – a fundamental principle deployed in calculating angles of triangles. On his flanks is Josephine Kimanthi, a teacher of integrated Science. Ms. Kimanthi flips through her smart phone and opens an online portal maneuvering through an Aerodynamics concept which explains the dynamics of how air influences objects it comes into contact with.

The teachers are ecstatic that with any smart device they can access the CEMASTEA's virtual STEM Laboratory to reach several learners or more than one classroom at a time- making teaching and learning an exciting experience.

This ingenious model of teaching Science, Technology, Engineering, and Mathematics (STEM) subjects is an innovation of CEMASTEA. The Centre seeks to equip Junior school (JS) teachers with the knowledge and skills needed to effectively integrate virtual laboratories in teaching concepts in STEM.

A virtual lab is an innovative and interactive learning environment designed to support the teaching and learning of STEM (Science, Technology, Engineering, and Mathematics) subjects. Virtual STEM Laboratories will allow learners and teachers to navigate the curriculum using digital tools in line with the evolving world. Learning will not be hindered by physical barriers and the outcomes can be measured effectively. Teachers can have content that aligns with their curriculum and will also have the opportunity to build new skills, through the use of technology and inquiry-based methodology.

The training was conducted in Nakuru, Kakamega and Machakos Regions. The focus of the training was to ensure that teachers can effectively engage their students through online platforms and also have the opportunity to build new skills, through the use of technology and inquiry-based methodology.

Director of Education Reforms and Junior School Programmes at the Ministry of Education, Dr. William Sugut said with the technology, students could be able to learn new concepts and facilitate deeper knowledge beyond the classroom. He noted that the use of virtual laboratories was in line with what the State is envisioning through developing competencies in science education. "As a country we are reforming education to develop competencies in learning and we are also supporting learners to prepare for the 21st century living through practical skills," he stated.

Innovating STEM Education at the 6th Engineering Partnership Convection

Eng. Margret N. Ogai CE, CEO, Engineers Board of Kenya poses a photo with the CEMASTEA exhibitors.

The 6th Engineering Partnership Convention (EPC 2025) took place in Nairobi, Kenya, from 5th to 9th May 2025 drawing together professionals, educators, policymakers, industry leaders, and innovators under the theme: "Engineering a Digital World."

Mrs. Gladys Masai, Director of STEM, Research and Innovation, speaking on behalf of the CEO, CEMASTEA during the opening ceremony.

The convention spotlighted the intersection of technology, innovation, sustainability, and digital agriculture, while also exploring how engineering can shape a smarter, more connected future.

CEMASTEA was proud to showcase its pivotal role in advancing STEM education. The organization emphasized the integration of engineering concepts in learning, the use of digital teaching tools, and collaborative engagement with key stakeholders.

Eng. John Tanui (Right) the PS State Department of ICT and Digital Economy and Eng. Festus Ng'eno (Centre) the PS State Development for Environment and climate change engaging with exhibitors on advancing STEM education and innovation when they visited the CEMASTEA booth.

Representing the CEO, CEMASTEA, Mrs. Jacinta Akatsa, CEMASTEA's Director of STEM Research and Innovation, Mrs. Gladys Masai, highlighted the Centre's dedication to nurturing a new generation of innovators. She reiterated that STEM-related subjects are actively promoted and hands-on workshops that expose students to real-world engineering applications provided. "We particularly encourage more girls to pursue STEM pathways and become future leaders in science and technology," she stated.

The convention featured insightful discussions on the future of artificial intelligence, engineering communication strategies, and the importance of industry-academic collaboration. Stakeholders expressed growing interest in digital fluency in STEM education, emphasizing the need for greater integration of digital tools and engineering in classroom settings.

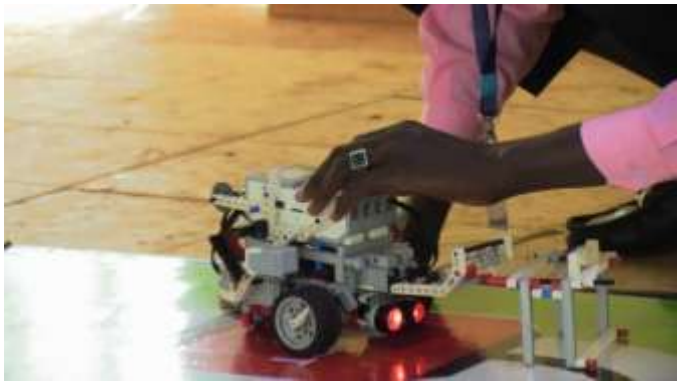
Guest of Honour Eng. John Tanui visited the CEMASTEA booth and praised its hands-on STEM demonstrations for making learning engaging and impactful. As part of its exhibition, CEMASTEA also showcased *digital learning tools such as coding and robotics, strategies for integrating engineering into classroom teaching, and its collaborative efforts with policymakers, educators, and industry to expand STEM outreach*. The Centre's presence at EPC 2025 reaffirmed its commitment to innovative STEM education.

The event offered a valuable platform for networking, knowledge exchange, and expanding partnerships, reinforcing CEMASTEA's role at the forefront of shaping future-ready learners in Kenya and beyond.

Judging Robotics:
The 2025Kenya Science and Engineering Fair (KSEF)

By: MMungai & DRasto

If you have a heavy job to do, a Form Three duo from Mutira Girls High School have designed a prototype of a groundbreaking robot that could someday take over tasks traditionally performed by warehouse workers and forklift operators! Their goal is full automation—developing a robot capable of handling multiple menial tasks with minimal human intervention. Lifting heavy loads is one of the most strenuous tasks in warehouse logistics, and they aim to address this challenge through technology.



This innovation among others were showcased at the 61st National Kenya Science and Engineering Fair (KSEF), held at Kangaru School in Embu County. The event brought together over 800 students, who exhibited projects tackling global challenges such as robotics, renewable energy, climate action, environmental sustainability, and emerging technologies. The competition included 13 categories ranging from robotics, mathematics, and physical sciences to biological sciences, engineering, and ICT.

The Robotics category, initially designed by CEMASTEA for STEM Model Schools, was open to all participating schools in KSEF 2025 that ran from April 6 to 12, with the aim of promoting curiosity, creativity, and hands-on learning.

During the event, Teachers Service Commission (TSC) Chairman Dr. Jamlick Muturi emphasized the role of STEM education in national development. He reiterated the government's commitment to ensuring that 60 percent of students engage in STEM fields. Dr. Muturi highlighted the significance of the Fourth Industrial Revolution (4IR), which focuses on automation, robotics, and intelligent systems, and urged stakeholders—including the private sector—to collaborate with the government to advance industrialization.

Margaret Njaggah, National Chairperson of KSEF praised the fair for empowering students to tackle real-world challenges. She noted that teachers are now receiving training in artificial intelligence, which will be a key feature of future competitions. She stressed the urgency of nurturing an entrepreneurial mindset among students to shift the focus from seeking employment to becoming job creators.

"Science, technology, and innovation are major enablers of social and economic transformation," Njaggah stated. "To achieve sustainable growth, we must apply knowledge and foster innovation." She concluded by emphasizing the need to align technological development with key sectors of the economy, including agriculture, tourism, ICT, and manufacturing, to drive national progress.

With specialized knowledge in robotics, emerging technologies, and innovative pedagogy, CEMASTEA staff ensured that judging in the robotics category adhered to sound scientific principles while aligning with educational objectives. CEMASTEA's involvement also provided valuable insights into emerging trends in student-led robotics projects, which will be integrated into national teacher training programs to enrich STEM education.

CEMASTEA seeks to mainstream robotics into the curriculum to enhance STEM education by offering students practical, engaging learning experiences and preparing them for 21st-century challenges.

Mentorship Programmes on STEM Subjects

By: WMagu & DRasto

In readiness for transition of 60 percent of learners to the STEM pathway in Senior School, CEMASTEA has stepped-up efforts aimed at enhancing performance of Science, Technology, Engineering and Mathematics (STEM) related subjects by carrying out a STEM outreach and mentorship programme in counties across the country.

The programme is designed to equip Junior Secondary (JS) teachers with practical skills and Pedagogical Content knowledge for effective implementation of STEM education, under the Competency Based Education (CBE). JS teachers play a key role in laying the foundation of CBE hence they are mentored to enhance their capacity in teaching and learning through learner-centered strategies. consultative sessions with Science and Mathematics teachers in the schools on effective teaching of STEM The teacher then nurtures and mentors the learners on these aspects mentoring teachers on how to use locally available materials to teach STEM subjects. For Kenya to achieve a newly industrialized status, STEM related pathways are very critical,"

To motivate, inspire and equip JS learners with the skills and knowledge necessary to excel in STEM subjects as a way of upscaling the uptake of the subjects in JS, a government's initiative towards Vision 2030, The programme by use of apparatus, experiments, models and play based learning innovative activities in mathematics, integrated science, and ICT are showcased. Sessions that cover climate change are also conducted.

CEMASTEA has developed innovative teaching and learning materials focusing on hands-on learning experiences to cultivate a generation of innovative learners poised to lead technological advancements in the country. Hands-on activities foster creativity among learners as they can actively engage with materials practical learning experiences, mentorship and exposure to cutting-edge science and technology. By engaging learners in practical activities, the competences, abilities, interest, and personality of the learner are easily observable. Stereotypes that sciences are meant for a particular gender or background are removed.

Junior secondary students from five Junior Schools in Baringo County take part in various Science and Mathematics practical lessons during the CEMASTEA STEM outreach and Mentorship Programme.

The STEM Mentorship and Outreach Programme have been conducted in various Counties including Baringo, Uasin Gishu, TransZoia and Kajiado. addresses issues that relate to capacity, interests, and needs of the learners.

While appreciating the programme, most teachers observed it was interactive, and had simplified the techniques of teaching having been exposed to innovative teaching strategies in STEM education. Learning of the STEM subjects had been made interesting and had exposed learners to the real world of innovation and technology.

School managers lauded CEMASTEA's initiative for igniting student curiosity and interest in STEM. They emphasized its potential to boost STEM participation and highlighted the importance of the theory-to-practice approach in making science learning interactive and effective. Despite challenges like limited lab facilities, head teachers expressed confidence that the innovations introduced would enhance schools' capacity.

CEMASTEA Celebrates Pi Day with a Focus on Innovation

Pi Day, observed globally on March 14th, celebrates the mathematical constant π (pi), renowned for its infinite, non-repeating decimal sequence.

Dr. Joyce Kindiki, the Second Lady of the Republic of Kenya, (in a green) engages with the CEMASTEA team at their Booth during the Pi Day celebrations.

Daystar University's Athi River Campus hosted the event which brought together learners, educators, stakeholders and key figures in the STEM community to celebrate mathematical marvels and explore their applications in solving real-world problems.

CEMASTEA participated and exhibited in the event designed to inspire innovation and leadership in STEM.

Dr. Joyce Kindiki, Second Lady of the Republic of Kenya graced the event as the chief guest. In her passionate address, she underscored the importance of collective effort in fostering scientific innovation for the betterment of society. Extending an open invitation to like-minded individuals and organizations, the Second Lady encouraged participation in the Science adding Value to the Environment (SaVE) Communities project, her initiative aimed at uplifting livelihoods through innovative approaches.

She called on the learners, various stakeholders, future innovators and leaders to leverage on their talents responsibly, emphasizing the need to inspire change and bring practical solutions to pressing issues in their communities. "The world needs your talents," she urged. "Innovations should uplift the livelihoods of our communities."

Focusing on sustainable agriculture, the Second Lady emphasized the need to embrace modern farming methods while also prioritizing value addition in agricultural products. By fostering innovation in these areas, communities can achieve not only self-sufficiency but also economic growth.

This year's Pi Day celebration was no exception. The theme, ***"Numbers & Beyond,"*** highlighted the integral role of mathematics in shaping sustainable futures and being reminded that the true essence of Pi Day lies not only in celebrating numbers but also in inspiring a brighter, more sustainable future for all.

Participants engage with interactive displays at the CEMASTEA Booth during the Pi Day celebrations at Daystar University, Athi River campus, exploring innovative approaches in STEM education and development.

CEMASTEA E-Learning Portal Upgraded

By: PWaibochi & DRasto

To address infrastructural challenges in schools and promoting equitable STEM education, CEMASTEA has upgraded its E-learning portal to enhance Science, Technology, Engineering and Mathematics (STEM) teaching and learning.

The Centre is aware of the challenges faced by STEM teachers in accessing resources and technology, especially in remote areas, and through the e-learning initiative, these issues are addressed. The portal offers flexible, accessible, and interactive learning experiences, ultimately leading to improved engagement, knowledge acquisition, and skill development. In the portal, teachers can access various digital resources, including virtual labs, digital materials, and training modules, participate in online training, interact with other educators from different schools and regions, promoting best practices and professional growth and fostering collaboration and knowledge sharing therefore enabling them to effectively teach STEM subjects and implement the Competency-Based Education (CBE).

A section of teachers from Nandi County undergoing a training conducted by CEMASTEA to provide them with the skills to utilize digital resources, interact with the CEMASTEA E-Learning platform.

The E-learning portal, is fashioned to facilitate *a **"community of practice"*** set up where STEM teachers and students can leverage virtual spaces and tools to collaboratively learn, share resources, learn from each other's experiences and develop expertise, ultimately enhancing both individual and collective learning and teaching practices. It also provides alternative learning opportunities that can mitigate the limitations of inadequate facilities in some schools and by simplifying complex concepts and introducing practical innovations, the portal helps to change negative perceptions about STEM subjects and encourage more students to pursue STEM pathways.

In making STEM education more engaging and accessible, especially in a world increasingly reliant on technology, the portal offers a vast collection of free, digital teaching materials including online articles, online simulations, digital library, educational videos, interactive modules activities, and digital textbooks among others for STEM subjects. The digital resources are quality-checked, and teachers and students can modify, combine, and share them. The upgraded portal also provides platforms for training, mentorship, and the dissemination of research findings, ultimately contributing to the development of future STEM professionals. It has also been designed to support learner centered teaching approaches, which involve active student engagement and real-world applications of STEM concepts. The portal can provide data analysis and visualization tools that help students understand complex concepts and patterns.

The upgrade comes at a time after the Center rolled out various training programs for teachers across the country to provide them with the skills to utilize digital resources, interact with the E-Learning platform.

The e-learning portal is a testimony to CEMASTEA's commitment to promoting STEM education and providing teachers with the tools and resources to effectively teach STEM subjects.

Greening the Future: Incorporating Teacher Training Colleges in Tree Nursery Initiatives in Kenya

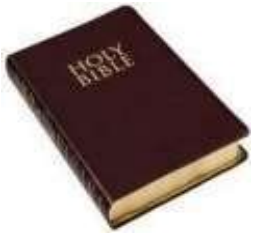
By: JOyuga & PWanjohi

In the journey towards environmental sustainability and climate action in Kenya, Teacher training colleges (TTCs) are becoming key players in national reforestation efforts through the establishment of institutional tree nurseries. This initiative aligns with Kenya's ambitious goal of planting 15 billion trees by 2032, part of the national strategy to combat climate change, restore degraded ecosystems, and inculcate a culture of tree growing among its Citizens.

CEMASTEA identified 34 Teacher Training Colleges to support through provision of suitable tree seeds and potting tubes to start Institutional tree nurseries. Teacher trainees use the tree nurseries to learn practical skills in nursery establishment, seedling propagation, and species selection. In addition, tree nursery projects are used to teach project management, entrepreneurship, and sustainable land use.
The program has seen success stories for instance in Koitalel University College, formerly Mosorroit TTC which has managed to propagate over 40,000 tree seedlings from the seeds donated by CEMASTEA. These seedlings are used both for greening the campuses and for distribution to surrounding communities and partner schools. The incorporation of TTCs into national tree-growing efforts is not just about planting trees, it's about cultivating a mindset of responsibility and action.

Machakos TTC planting trees donated by CEMASTEA

A fully established tree nursery at Koitalel University College (formerly Mossoriot TTC)



Hebrews 13:17

Obey your leaders and submit to them, for they are keeping watch over your souls, as those who will have to give an account. Let them do this with joy and not with groaning, for that would be of no advantage to you.

The day when We will call every people with their Imam (Leader).

(Sūrulat Isrā, no.17, Āyat 71)

Four students earn prestigious Mathematics scholarship at African Olympiad Academy

BY IAN CHEPKUTO, KNA

Center for Mathematics, Science and Technology Education in Africa staff at the institution pose for a photograph with four math learners who have successfully won an education scholarship to Kigali, Rwanda.
PHOTO: BONFACE MALINDA/KNA

Four top students have earned a prestigious three-year mathematics scholarship at the African Olympiad Academy (AOA) in Kigali, Rwanda. The students excelled in the Pan-African Rising Stars Mathematics Contest, held at the Centre for Mathematics, Science, and Technology Education in Africa (CEMASTEA) in Karen, Nairobi.

The initiative, which is part of the AOA's talent recruitment camp tour, aims to identify and nurture the brightest young mathematicians from across the continent.

The four students are Gilbert Ogoro and Shawn Tunai from Alliance Boys High School, Tumi Imani from Lukenya High School, and Baraka Mulwa from Mangu High School. The Chief Executive Officer (CEO) of CEMASTEA, Jacinta Akatsa, emphasized the power of mathematics in solving everyday problems in a speech delivered on her behalf by Gladys Masai, the Deputy Director of STEM Research and Innovation.

"Mathematics is not just about solving problems, it is about nurturing creativity, critical thinking and a love for lifelong learning," she said.

She added that, "These skills are essential for building a better future, not only for Kenya but for Africa and the world."

The intensive contest is specifically designed to prepare them for major global competitions such as the Pan-African Mathematics Olympiad (PAMO) and the International Mathematical Olympiad (IMO).

Selected students will be awarded a full scholarship to attend AOA, inclusive of tuition, boarding, uniform, and travel expenses. Describing the camp as "life-changing," the CEO noted that it represents a significant step in nurturing young talent and advancing scientific innovation in Kenya. "This opportunity is a call for a bigger dream, to keep questioning, imagining, and pushing for your limits," she said.

> Mathematics is not just about solving problems, it is about nurturing creativity, critical thinking

She added that, "Our young talents are not just the future — they are creators and leaders."

She encouraged the students to keep striving for excellence, follow their passions, and remain committed to making a positive impact.

Throughout the camp, participants engage in advanced problem-solving sessions and receive mentorship from top Olympiad coaches.

The students were selected from across Kenya based on their performance at the Kenya Math Olympiad (KMO), which is organized by CEMASTEA, the University of Nairobi and the Centre for Education in Mathematics and Computing (CEMC). based at the University of Waterloo.

FABLE: *The Council of the Clearing*

In the heart of the Verdant Forest, where the trees whispered secrets and the rivers sang lullabies, a diverse group of animals lived in harmony. Yet, like all places of peace, challenges often arose, and when they did, the animals relied on the ancient tradition of the Council of the Clearing.

The Council was made up of the wisest animals: Barro the old bear, swift Luma the deer, clever Poko the raccoon, and thoughtful Tala the owl. But the leader of the Council had always been Leo, the mighty lion—strong, brave, and noble.

One summer, a great drought gripped the forest. Streams dried up, berries shriveled on their stems, and tempers grew hot. The Council was called to meet under the fading shade of the Great Tree.

"Leo will know what to do," murmured many of the animals. But Leo, proud as he was, admitted, “This is a new kind of challenge. Strength alone cannot fix it.”

Poko suggested rationing the remaining water, while Luma proposed moving to higher ground. Tala spoke about signs in the stars that hinted at change. Yet, the animals quarreled, each group convinced their idea was best.

Observing quietly at the edge of the gathering was a young tortoise named Tembo. He wasn’t strong, fast, or famous, but he had watched the forest his whole life and understood its quiet rhythms.

Timidly, Tembo approached the Council. “If I may speak,” he said, “perhaps the answer lies not in who has the loudest voice, but in listening—to each other, and to the forest.”

The animals paused. “Go on,” Leo said gently.

Tembo explained how he had noticed small underground springs still bubbling near shaded rocks. “If we all work together—dig channels, share water, and help the weakest among us—we might survive until the rains return.”

Leo stood. “True leadership isn’t always leading from the front. Sometimes, it’s lifting up voices like Tembo’s.”

And so, under Leo’s humble guidance and Tembo’s wise insight, the animals worked as one. They dug, carried, shared, and watched over one another. When the rains finally came, the forest bloomed greener than ever before.

From that day on, the Council of the Clearing included not just the strong and the swift, but also the quiet observers—because leadership, they learned, is not about power, but about purpose, wisdom, and heart.

https://fablesofaesop.com/belling-the-cat.html

PICTURE SPEAK: School Visits at CEMASTEA

Students from various schools cross the country conducting different activities during visits at CEMASTEA. During the visit, students visit the Innovations lab, the makerspace, Maths. Physics, Biology, and Chemistry labs. Learners also interact with the environment in Place Based Learning during Biology sessions.

The 2025 STEMTASTIC Adventures! African Symposium

The event will bring together:

- Ministries of Education and other government policymakers from across Africa;
- Regional development agencies and donors;
- Innovation leaders and practitioners;
- Representatives from multilateral and bilateral agencies;
- Non-profit and for-profit institutions and foundations;
- Key stakeholders with common interest in exploring effective strategies for enhancing STEM education in *pre-primary, primary,* and *secondary settings*, especially in lower- resource contexts and across both formal and informal learning environments;
- Educational institutions and implementing partners;
- Leading researchers; and
- STEM educators, teachers, and students.

CEMASTEA is co-hosting the 2025 STEMtastic Adventures! Africa Symposium with the African Union Development Agency-New Partnership for Africa's Development (AUDA-NEPAD) and the Mobiles for Education (mEducation) Alliance, the leading convener of development and donor agencies, foundations, and leading global authorities in education technology.

The Symposium will feature a diverse range of STEM education presentations across several tracks including:

- AI and Emerging Technologies,
- Accessibility with Limited Resources,
- Conservation & Climate Education,
- Inclusive Education,
- Mathical Thinking,
- Foundational Learning,
- Youth Entrepreneurship / Employability,
- Teacher Empowerment,
- Policy and Funding.

July 22-25, 2025

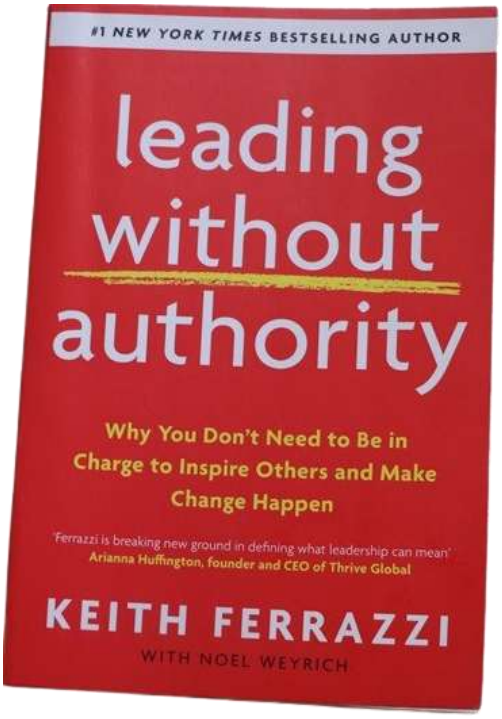
at

CEMASTEA, Nairobi, Kenya.

Register Today!

BOOK REVIEW: *Leading Without Authority* by Keith Ferrazzi

By Esther Nyambura



Leadership is not about titles; it's about heart.

What if the future of leadership had nothing to do with job titles, corner offices, or who reports to you? That's exactly what Keith Ferrazzi challenges in his powerful and practical book, *Leading Without Authority*.

In today's world, collaboration is everything. But how do you lead a team when you're not the "boss"?

According to Ferrazzi, the answer is co-elevation, the idea of lifting others while growing together. Its leadership based on trust, service, and connection.

He introduces eight refreshingly new work rules, like

- *"Who's your team?"* - Think beyond org charts.
- *"Accept that it's all on you."* - Don't wait for permission to lead.
- *"Create Deeper, Richer, More Collaborative Partnerships"*- \

Relationships drive results.

- *"Co-Development"* - Grow with others through shared learning and feedback.
- *"Praise and Celebrate"* - Recognition creates connection and momentum.
- *"Co-Elevate the Tribe"* - Break silos and lift the collective.
- *"Join the Movement"* - Lead a culture shift, not just a project.

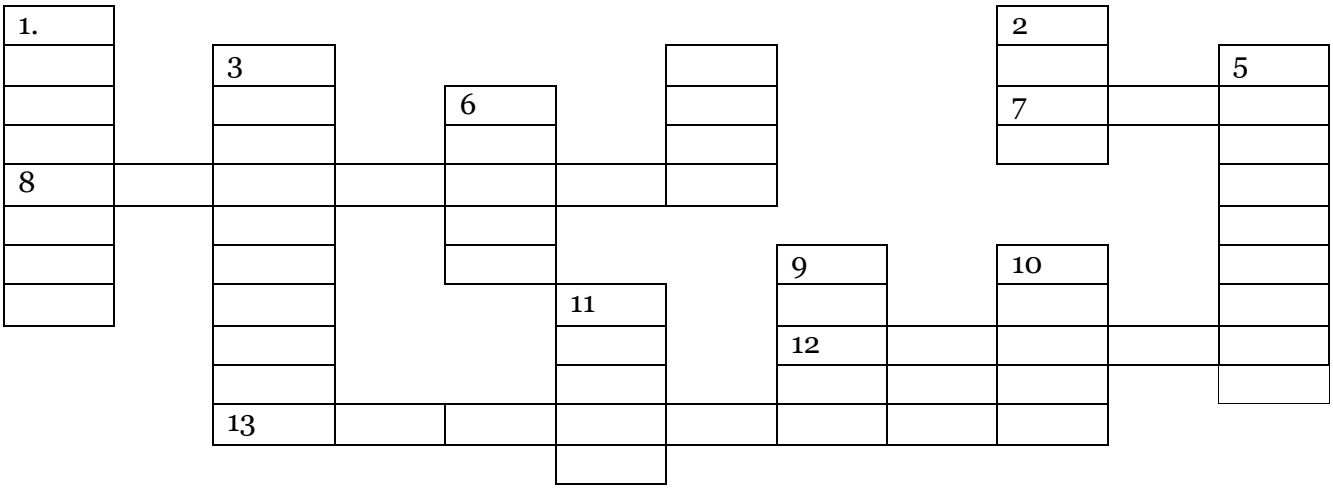
What makes this book shine is how relatable it feels. It's not just advice for CEOs; it's for *anyone* trying to make a difference in their workplace, school, or community.

Ferrazzi also explores the emotional side of leadership, how generosity, vulnerability, and even forgiveness help us become better collaborators. It's bold. It's human. It's needed.

This book isn't just about leadership strategies. It's a mindset shift. If you've ever felt like you *could* lead but weren't sure how, this book gives you the tools and the confidence to do it.

So... *who's your team?* Maybe it starts with the people right next to you.

Crossword



ACROSS

7. Unit of electrical resistance (3)

8. Neutral particle in an atomic nuclear(7)

12. Vibration that travels through air(5)

13. Negative charged subatomic particle(8)

8. Neutral particle in an atomic nuclear(7)

DOWN

1.Mass in motion(8)

2. Basic unit of a chemical element(4)

3.Properly opposing change in current(10)

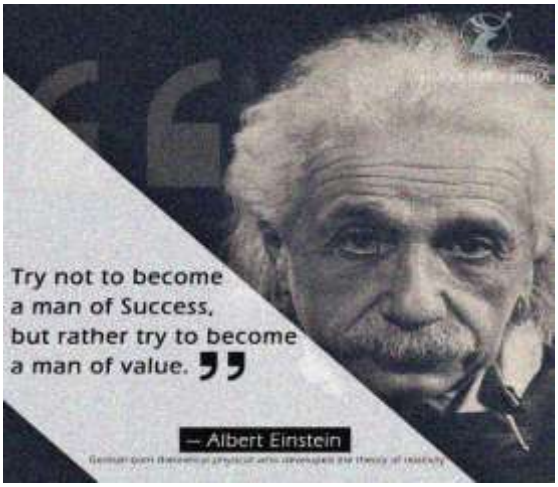
3.Properly opposing change in current(10)

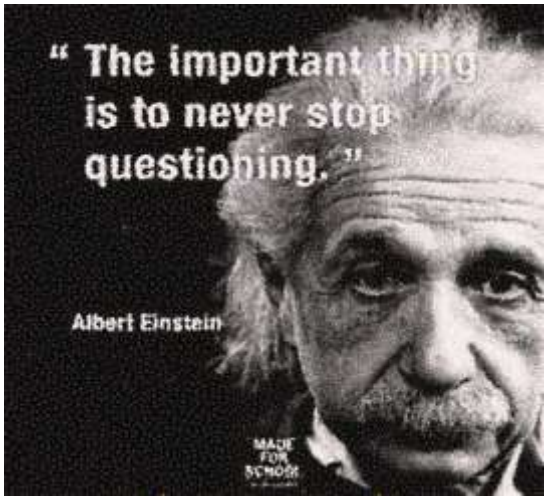
4. European particle physics lab(4)

5.Height of a wave crest(9)

6. Nuclear physicist known for quantum theory (5)

9. Precursor technology to the laser (5)





REPUBLIC OF KENYA

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

CEMASTEA CITIZEN SERVICE DELIVERY CHARTER

VISION
An empowered, creative and innovative STEM society in Africa

MISSION
To continuously develop capacity in STEM education for sustainable development through training, research, innovation and partnerships with related ecosystems

CORE VALUES
Excellence, Inclusivity, Innovation, Integrity, and Sustainable Impact

SERVICE COMMITMENT	REQUIREMENT TO OBTAIN SERVICE	COST OF SERVICE/ GOOD	TIMELINE	RESPONSIBLE OFFICE(R)
PROVISION OF INFORMATION				
Response to phone calls(landline or any other official line)	Phone call	Free	1 5 seconds	CEO/Administrators
Response to enquiry by walk-in clients	Walk in and make the enquiry	Free	1 Minute	
Response to correspondence	Written correspondence (letters)	Free	5 working days	
	E-mail	Free	1 working day	
	Social media (Twitter, Facebook, YouTube)	Free	1 working day	CEO/Head of Corporate Communications
Response to public complaints and grievances	Make a complaint	Free	1 working day	CEO/Chair Service Delivery
Resolution of complaints	Make a verbal or written complaint	Free	30 days	CEO/Chair Service Delivery
Processing of request for information	Make a request for information	Free	21 days	CEO/Administration Officers

HOSPITALITY				
Provision of conference, catering and accommodation services	Service request Payment of requisite charges	Ksh. 3,500 per person per day for conferencing Ksh. 3,000 per person per day for accommodation	As per client request	CEO/Head of Hospitality
LINKAGES AND PARTNERSHIPS				
Establishment of partnerships	Provision of relevant documents	Free	3 Months	CEO/Head of Linkages and Partnerships
Implementation of agreed partner activities	Provision of agreed resources	Free	As stipulated in the contract	
LIBRARY				
Access to library services (print and e-resources)	Registration	Free	Real Time	CEO/Head of Knowledge Management
POLICY				
Public participation in policy making process	Familiarization with issues and active participation	Free	1 day	CEO/Heads of Functional areas

TRAINING OF CURRICULUM IMPLEMENTERS ON STEM EDUCATION				
Communicate to relevant office(s) to invite participants to attend training	Free	Free	3 weeks before commencement of training	CEO/Director STEM Training
Issue certificates for face-to-face training by CEMASTEA	Adherence to certification guidelines	Free	14 working days after training	CEO/Director STEM Training
Issue certificates for online training by CEMASTEA	Adherence to certification guidelines	Free	60 working days after training	CEO/Director STEM Training
RESEARCH AND INNOVATION IN STEM				
Disseminate Monitoring and Evaluation (M&E) reports	Free	Free	3 months after completion of the exercise	CEO/ Director STEM Research and Innovation
Disseminate research reports	Free	Free	3 months after data collection	CEO/Director STEM Research and Innovation
CONSULTANCY				
Consultancy in Training and Research in STEM	• Formal request • Payment of consultancy fees	Applicable charges	As stipulated in the contract	CEO/Director STEM Training/ Director STEM Research and Innovation
RECRUITMENT				
Recruitment of staff	Make a formal application based on the advert	Free	90 days	CEO/Head, Human Resource

PAYMENT				
Payment for goods and services received	LPO/Invoice Certificate of Completion/Goods/Services Received	Free	30 Days from receipt of all relevant payment documents	CEO/Head of Finance and Accounts/Head Supply Chain
SUPPLY CHAIN MANANGEMENT				
Registration of Suppliers	• Duly filled application form • Company profile • Certificate of Incorporation/ Registration • PIN Certificate • Valid Tax Compliance • Certificate/Exemption • Original Bank Statement • Copy of Certificate of Registration with relevant regulatory bodies • Non-refundable Fees Payment receipt • Copy of annual return forms filed by company registry • National Identity Card /Passport	Free	14 Working days	CEO/Head, Supply Chain Management
Processing of tenders	Submit bids for goods and services	Free	90 days	CEO/Head, Supply Chain Management
Notification of successful and unsuccessful bidders	Request letter for debriefing letter	Free	1 day	CEO/Head, Supply Chain Management
Disposal of obsolete stores	Submission of bids	Free	60 Days from dates of advertisement	Head of Supply Chain

We are committed to courtesy and excellence in service delivery.

Any service/good rendered that does not conform to the above standards or any officer who does not live up to the commitment to courtesy and excellence in service delivery should be reported to:

Approved by:
Jacinta L. Akatsa, HSC

Chief Executive Officer,
CEMASTEA

27TH January, 2025

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