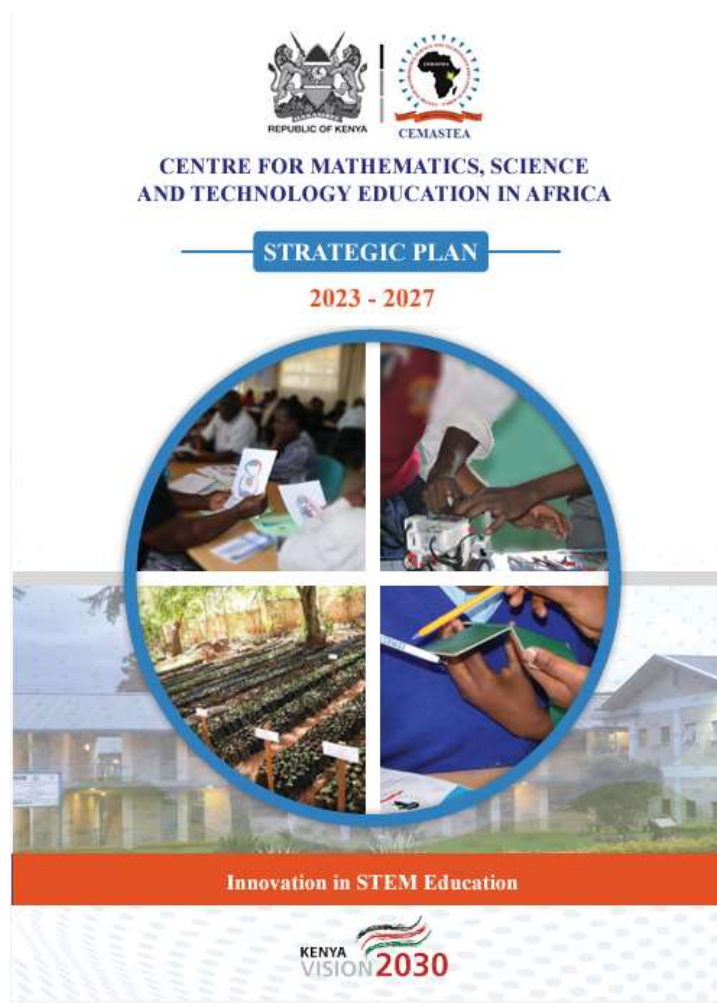


Issue 017



CEMASTE INFO

Newsletter



**CEMASTE launches its Strategic Plan
2023 - 2027**

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In this issue, we highlight several key initiatives, the Launch of the Centre's Strategic Plan 2023-2024 that outlines the institution's visionary roadmap for the next five years. CEMASTEA is committed to shaping the future of STEM education. developments in education, innovation, and collaboration. Our goal is to empower educators, foster excellence, and drive positive change across the educational landscape.



We to share training programs comprehensively designed to equip teachers to enhance their pedagogical skills. The training of Junior Secondary (JS) Teachers and Quality Assurance Officers since quality education begins with well-prepared educators, Principals and teachers drawn from 103 STEM schools since mathematics and science form the bedrock of innovation, a pilot symposium for Maths and Science teachers was successfully conducted.

The Centre delves into collaboration, for it knows no borders. The International Webinar on Integrated STEM Education in Africa, a global webinar, brought together experts, thought leaders and practitioners to discuss integrated STEM education's impact on Africa's future STEM education .

Join us as we share best practices in STEM, and as we navigate these exciting topics among others, we invite you to engage, learn, and contribute.

Enjoy your reading



A group photo of The Ministry of Education Officials, Board of Governors and CEMASTEA staff during the launch of the Strategic Plan

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MESSAGE FROM THE CHAIR BOARD OF GOVERNORS



Since its inception in 2004, the Centre for Mathematics, Science, and Technology Education in Africa (CEMASTEA) has made great strides in establishing a Continuous Teacher Professional Development framework for Science, Technology, Engineering and Mathematics (STEM) educators at national and continental levels. The Centre is a reputed Pan-African institution in promoting STEM education through training and research.

The rationale for developing the fifth-generation Strategic Plan is to set clear objectives and directions for CEMASTE A to achieve long-term goals and objectives. The Plan serves as a roadmap outlining Centre's Vision, Mission, Core values, and Strategies to achieve desired future. The Strategic Plan aligns with Government's call to equip every learner with world-class skills, knowledge, creativity and innovativeness necessary for socio-economic development and thrive in the 21st Century.

The Strategic Plan captures accountability statement on strategic objectives and aspirations of the Centre in the next five years. The development process made reference to Kenya Vision 2030, the Bottom-Up Economic Transformation Agenda, the "Constitution of Kenya," the 4th Medium Term Plan and relevant policies and laws. Moreover, the process considered Global and regional perspectives including; the United Nations Agenda 2030 Sustainable Development Goals (SDGs), African Union Agenda 2063 and East Africa Community Vision 2050. Indeed, the Plan outlines CEMASTE A's strategic direction and focuses on enhancing quality of STEM education in Kenya and the rest of Africa. In particular, it addresses how resources will be applied to support implementation of strategies and initiatives. It considers stakeholder engagement and communication, including government, educational institutions, teachers, students, and community in the implementation of the Plan. Furthermore, the Plan considers mechanisms for monitoring progress and evaluating success of strategies and initiatives. The Strategic Plan was developed through a participatory and consultative approach involving inputs from Board of Governors, management, staff and other key stakeholders. The valuable perspectives were considered and integrated, ensuring relevance of strategies.



Implementation of the Plan, will strengthen Centre's role of excellence in Science, Technology, Engineering and Mathematics (STEM) education in Africa and contribute to improving educational outcomes and developing future generations of African scientists, engineers, and innovators. I therefore call upon all stakeholders and partners to support the strategic direction and focus of the Centre towards the realization of her mandate.

**Board of Governors Chair,
Dr Pius Mutisya OGW**

MESSAGE FROM THE CEO



As Kenya continues to make its transition into a new aeon in education, CEMASTEAC presses on to promote all matters STEM education and nothing embodies this better than our new Strategic Plan. The Plan is an important milestone in the life of the Centre because it opens new horizons in the development of STEM Education.

This document is the blueprint through which CEMASTEAC will achieve its Mission and Vision. What this means is its purpose is to provide a framework within which we can work toward provision of a coherent and well-coordinated STEM education. This is particularly critical in light of the STEM pathway, transitions from junior to senior secondary school and ultimately, achievement of the relevant education and training for workplace readiness in both formal and informal employment. The implementation of the strategic plan is premised on attaining six identified strategic areas, which are: Training & Competence Development, Research and Knowledge Management, Resource Mobilization, Partnerships and Linkages, Governance, Organizational Strengthening and Strengthening Science, Technology, Engineering, Mathematics and Innovation (STEMI) Education, Training and Research in Africa from Which Eighteen Strategic Objectives are derived.

All this is in Recognition that in the current interconnected world and advancing global trends, STEM and education at large play a critical role in steering the socio-economic betterment of nations. It is also worth mentioning that development of this Plan coincided with CEMASTEAC's transition to a State Corporation with a mandate of training and research, a huge responsibility which we don't take lightly and one that we firmly believe will positively mould the future of education, training and research not only in Kenya but the Africa at large.

I am grateful to CEMASTEAC BOGs, management, staff and stakeholders who were crucial in developing the Strategic Plan. In particular, I appreciate the role played by the Ministry of Education, the National Treasury and Economic planning officers for providing insights and invaluable technical contributions during the strategic plan development process. Much regards to the President of the Strengthening Mathematics and Science Education in Africa (SMASE-Africa) for his valuable inputs. Appreciation goes to staff members at CEMASTEAC, with the Strategic Plan Implementation Committee (SPIC) deserving special mention. I also laud stakeholders' efforts and views during the validation of the Strategic Plan and call upon them to continue partnering with us in its implementation.

Readers can reach us via email: ceo@cemastea.ac.ke

Jacinta L. Akatsa, HSC, Chief Executive Officer



It was pomp and dance during the Launch of the CEMASTEAC 2023-2027 Strategic Plan

CEMASTEA STRATEGIC PLAN 2023 – 2027: KEY HIGHLIGHTS

The Strategic Plan is a Roadmap for Achieving the Centre’s Vision and Mission. It Outlines Strategic Objectives, Strategies, And Resource Requirements for the 2023-2027 Strategic Period. The Plan Will Enable CEMASTEAM Focus Its Efforts, Allocate Resources, And Measure Progress Towards Desired Outcomes. Mandate: Develop Capacity in STEM Education, Training and Research. Vision: An Empowered, Creative and Innovative STEM Society In Africa And. Mission: To Continuously Develop Capacity In STEM Education For Sustainable Development Through Training, Research, Innovation And Partnerships With Related Ecosystems.

STRATEGIC GOALS: THE FOLLOWING ARE THE STRATEGIC GOALS FOR THE CENTRE FOR THE PERIOD 2023-2027

- Goal No. 1: Enhanced quality of teaching and learning
- Goal No. 2: Increased evidence-based body of knowledge on STEM education
- Goal No. 3: Realized stable resource base.
- Goal No. 4: Increased partnerships, linkages and collaborations.
- Goal No. 5: Enhanced governance and accountability.
- Goal No. 6: Realized organizational effectiveness and efficiency.
- Goal No. 7: Strengthened STEMI education, training and research in Africa.

Core Values: The aspirations of the Centre, as laid down in this Plan, will be anchored on the following core values: excellence, inclusivity, innovation, integrity, and sustainable impact.

Excellence: We strive for the highest standards of excellence, embracing a culture of continuous improvement and a commitment to quality in all its training, research and policy implementation programs.

Inclusivity: We promote inclusivity by creating an environment where all internal and external stakeholders feel valued, respected, and have a sense of belonging. The Centre will foster diversity, promote equal opportunities, embrace public participation and encourage divergent perspectives and inputs in running its programs.

Innovation: We foster a culture that encourages imagination, creativity, exploration of unconventional solutions, and pursuing ideas that challenge the status quo. The Centre will also promote the utilization of maker’s spaces and create platforms for showcasing ideas through STEM-based fairs and boot camps.

Integrity: We are dedicated to maintaining honesty, ethical conduct, and a steadfast commitment to doing what is right in all situations, whether in personal or professional pursuits. The Centre is committed to transparency and accountability, adhering to the highest standards and faithfully following the laws that govern its practices.

Sustainable Impact: We promote sustainable impact by making deliberate choices that contribute positively to the long-term well-being of our clients, society, the environment, and future generations. In the implementation of our programs, the Centre considers the economic, social, and environmental outcomes and aim to create sustainable benefits while minimizing the adverse effects.

2.6 QUALITY POLICY STATEMENT

The Centre for Mathematics, Science and Technology Education in Africa is committed to providing training to curriculum implementers and conducting educational research in a timely, efficient, and effective manner. The Centre is committed to satisfying customers, organizational, legal and ISO 9001:2015 requirements, and to the continual improvement of its quality management system.



CEMASTEA Strategic Plan 2023 – 2027: Strategic Objectives

KRA	Strategic objective(s)	Strategies
KRA 1: Training and Competence Development	1.1 To improve quality and relevance in all training programs	1.1.1 Implementing needs-based training that addresses contemporary issues. 1.1.2 Providing technical support for the implementation of the national STEM strategy and policy. 1.1.3 Promoting creativity and innovation in STEM education. 1.1.4 Promoting Education for Sustainable Development (ESD), particularly climate change actions. 1.1.5 Strengthening school-based teacher support programs.
	1.2: To enhance access, equity, gender parity and inclusivity in all training programs	1.2.1 Increasing training opportunities for all curriculum implementers 1.2.2 Promoting gender responsive pedagogy. 1.2.3 Promoting equity, gender parity and inclusivity in STEM training for teachers 1.2.4 Transform selected SNE schools to model STEM education
	1.3: To increase e-learning utilization and ICT integration in STEM education.	1.3.1 Promoting e-learning and ICT integration among the curriculum implementers of STEM education. 1.3.2 Strengthening the e-learning platforms.
KRA 2: Research, Development and Knowledge Management	2.1: To enhance evidence-based STEM education.	2.1.1 Strengthening research capacity in STEM education. 2.1.2 Strengthening the quality of STEM education.
	2.2: To enhance knowledge management base.	2.2.1 Strengthening research knowledge process management hub/repository
KRA 3: Resource mobilization, partnerships and linkages	3.1: To increase center's resource base.	3.1.1 Building resource mobilization capacity 3.1.2 Enhancing business development function 3.1.3 Enhancing resources from government's allocations for strategic interventions.
	3.2 To enhance partnerships and linkages for improved competencies in STEM education.	3.2.1 Expanding partnerships' base for strategic interventions. 3.2.2 Establishing strong linkages 3.2.3 Strengthening consultancy services portfolio
KRA 4: Governance	4.1: To improve corporate governance	4.1.1 Strengthening the capacity of the board of governors 4.1.2 Building capacity at the county committee levels. 4.1.3 Strengthening organizational performance & productivity 4.1.4 Implementing the Mwongozo code of governance for State Corporations and circulars issued by government.
	4.2: To enhance fiduciary assurance	4.2.1 Enhancing the asset management 4.2.2 Improving financial planning, budgeting and utilization. 4.2.3 Strengthening the procurement process. 4.2.4 Enhancing Risk-Based Audit (RBA).
	4.3: To enhance environmental conservation.	4.3.1 Increasing Forest cover under the national tree growing and restoration campaign. 4.3.2 Enhancing e-waste management.

KRA 5: Organizational strengthening	5.1: To improve organizational visibility and strengthening effectiveness.	5.1.1: Ensuring compliance to quality management system (QMS) 5.1.2: Strengthening the Centre's corporate brand and visibility. 5.1.3: Strengthening human capital 5.1.4: Improving infrastructural development and maintenance
	5.2: To increase the number of people accessing open resources.	5.2.1: Enhancing digitization of documents and records 5.2.2: Enhancing access and adaptation of teaching and learning resources
	5.3: To enhance automation in key processes.	5.3.1: Automating key processes 5.3.2: Ensuring business continuity 5.3.3: Enhancing safety and security of data & information
KRA 6: Enhancing Science, Technology, Engineering, Mathematics and Innovations (STEMI) education.	6.1 Strengthen CEMASTEAs coordination role in promoting strategic interventions in STEMI education.	6.1.1 Strengthening country chapters in member countries. 6.1.2 Strengthening the continental secretariat functions. 6.1.3 Enhancing CEMASTEAs capacity to serve as an African Centre of excellence in STEMI education.
	6.2 To improve the policy environment that promotes STEMI education.	6.2.1 Reviewing the policy framework for STEMI education and training environment 6.2.2 Integrating diversity and inclusion into STEMI education and training in teacher professional development. 6.2.3 Monitoring of policy environment and training programs continuously.
	6.3 To improve STEMI education and training practices.	6.3.1: Initiating African STEM curriculum reforms for greater relevance and flexibility. 6.3.2: Initiating joint Africa teacher training and development programs. 6.3.3 Integrating technology to Africa STEM training practices and pedagogy. 6.3.4 Leveraging technology to scale STEM learning
	6.4 To enhance STEMI research and development and knowledge management.	6.4.1 Improving R&D in Africa STEMI domain to inform STEMI policy, practice and research. 6.4.2 Promoting knowledge sharing on innovative STEM practices
	6.5 To strengthen collaboration and partnerships in STEMI education providers, industry leaders and policy makers.	6.5.1 Promoting STEMI awareness and advocacy in Africa 6.5.2 Enhancing global collaborations and partnerships in STEMI policy, research and practice



Guests interacting with the innovations at CEMASTEAs during the launch of the Strategic Plan



Target

Ministry of Education Officials, School Leaders, Teachers, STEM - Based Organizations, Teacher Trainers, Partner Networks & Linkages with interest in STEM Education.

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ceo@cemasteia.ac.ke

deepening their understanding of innovation, computational thinking and the principles of slow movement. The webinar also drew inspiration seeing that Integrated STEM education is recognized as a building block and adequate solution to the various challenges facing the Africa. Why? Because Integrated STEM education emphasizes the interdependence between STEM subjects requiring teaching and learning of content from two or more STEM subjects within an authentic real-life context and not just reliance on application of knowledge and skills from single STEM disciplines.

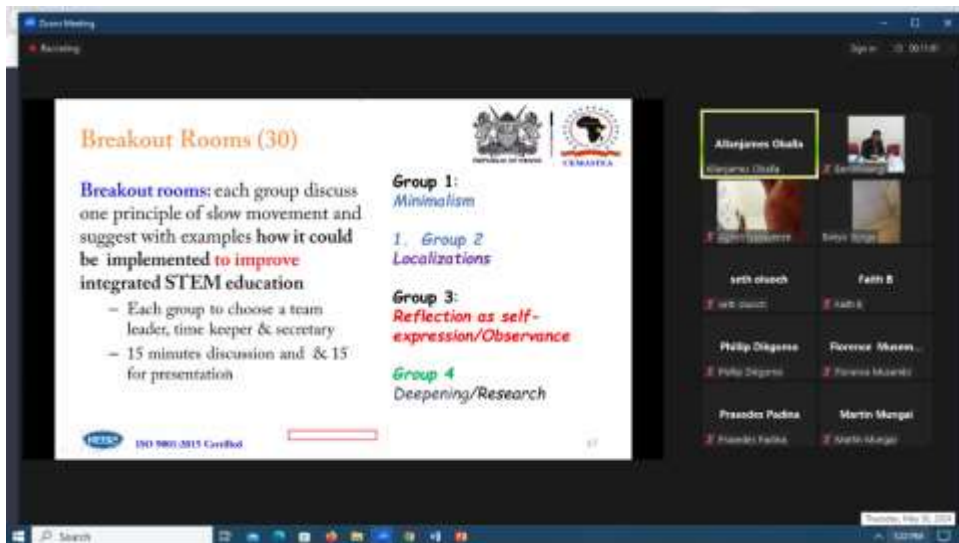
The webinar was anchored in three main sessions namely: Learner-centered practice in STEM education, Principles of Slow Movement in STEM Education & Innovation and Computational thinking in STEM education and sought to speak to the spirit of the African Union Commission year of education 2024, mainly insisting on the need, among others, to address inequities in STEM education to achieve a level-playing field for our children and the generations that follow. The presentations and deliberations were intended to be part of a concerted effort to form quality and implementable policies in STEM education, hopefully culminating in the establishment of collaborative partnerships, networks and synergies to fast-track development of STEM education in African countries.

International Webinar on Integrated STEM Education in Africa

By Mary Sichangi and Ben Mwangi

There is a hunger, an incessant desire and universal acceptance that most modern education systems are geared towards adequately preparing children for 21st century life and the complexities it brings. CEMASTEIA recognizes this and has been at the forefront of raising awareness and fueling conversation on the importance of integrating STEM education right from the grassroots levels, upwards to higher education and subsequently in pursuit of STEM-based careers.

It is in this respect that the Centre organized an international webinar on integrated STEM education in Africa from 29th to 31st May 2024 which provided a unique opportunity for participants to engage in discussions that enhance harmonized understanding of integrated STEM education while also



The International webinar on Enhancing Integrated STEM education in Africa held on 29th-31st May 2024



A research conducted across Africa has revealed that inadequate teaching and learning resources and facilities has led to Africa lagging behind in access to Science, Technology, Engineering, and Mathematics (STEM) [education](#).

The research data released in Centre for Mathematics, Science and Technology [Education](#) in Africa (CEMASTEA) during a policy dialogue forum on integration of STEM [education](#) and play-based pedagogies in African education was conducted in African countries in 2020 and between October 2022 and June 2023 respectively for high school and primary school learners.

The study conducted by Association for Development of [Education](#) in Africa sampled primary schools in 10 countries; Eswatini, Kenya, Ivory Coast, Malawi, Mauritius, Mozambique, Nigeria, Rwanda, Senegal and The Gambia.

For secondary level, it involved 9 countries; Angola, Botswana, Namibia, South Africa, Kenya, Rwanda, Uganda, Ghana and Morocco.

Association for Development of Education in Africa, Inter-Country Quality Node on Mathematics and Science [Education](#) (ICQN-MSE) coordinator Mary Sichangi said the research involved 185 secondary school teachers of STEM, 65 principals / directors of secondary schools, 36 [education](#) officials at sub-national level, and 17 senior [education](#) officials at HQs.

Sichangi who is also head of Partnerships & Linkages Department and Senior Teacher Trainer, Mathematics [Education](#) at CEMASTE, revealed that in secondary level, other challenges including poor teacher pedagogical practices, student lack interest in the subject, insufficient number of teachers of STEM, gender stereotypes and irrelevant STEM curriculum.

Some strategies addressing quality of STEM education are identified in education sector plans, some schools and sub-geographies had a School development Plan (SDP) and regional [education](#) strategic plan that includes an objective on improvement of STEM [education](#).

Some countries have made good progress in developing KPIs for tracking quality of STEM education.

The research revealed that there was no specific stand-alone institution in any of the countries charged with quality assurance of STEM education.

The report recommended STEM education policies and curriculum reforms, resource mobilization, prioritization and utilization, teacher training, CPD (include communities of practice), motivation, and working conditions.

Others are comparative analysis of trends in attendance and performance, unique quality assurance and standards mechanisms, mentorship, coaching and outreach programmes and school leadership development support, and parental support.

Watch as aired by KBC TV:

https://youtu.be/wW42CT6soD0?si=6DhoKeOOxhDI2_Xa

Empowering Quality Standards and Assurance Officers (QASOs) for Enhanced STEM Education

By LMakanda/AMumbi/WMagu/DOrero

The collaborative efforts between CEMASTEА and the Directorate of Quality Assurance and Standards are set to significantly improve the quality of STEM education in Kenya's early learning and basic education institutions. By fostering communities of good practice and promoting STEM-related activities, the basic education sector will be transformed to meet the aspirations of learners, teachers, parents, and other stakeholders. They have also started a collaborative programme for supporting the Junior Secondary (JS) teachers at school level to actualize learner centered strategies such as inquiry-based learning that forms part of what the teachers are trained on. The mission of CEMASTEА is to continuously develop competencies for sustainable development through Science, Technology, Engineering and Mathematics (STEM) Education. The Centre therefore seeks to build capacities in STEM education by nurturing talents in STEM at the basic education to eventually create a sufficient pool of learners with interest in pursuing the STEM Pathway at Senior School, STEM related courses in higher education and STEM related careers. With the support of the Ministry of Education CEMASTEА has continuously enhanced the capacity of JS teachers handling the STEM related learning areas.

A three-day training, themed: *‘Enhancing the capacity of QASO to monitor and support JS Teachers of STEM related subjects for effective implementation of the Competency Based Curriculum* that targeted 358 Quality Standards and Assurance Officers (QASOs) based at the sub-county and county levels and drawn from 47 counties, as well as some from MoE headquarters took place from 27th to 29th May 2024 running concurrently in three training venues namely; Kakamega Nakuru and Machakos.

The training aimed at sharpening the QASO'S knowledge and skills to ensure effective and successful delivery of support to teachers in Junior school and to reflect and strategize on effective implementation of the Competency-Based Curriculum (CBC). It focused on the topical areas in education such as Feedback on Classroom lesson observation, interpretation of Curriculum Designs, Learner Centred Pedagogies and ICT Management Tools and Curriculum Delivery Support, related activities in STEM education, and topics that related to their work. The training was presided over by Dr. Pius Mutisya, OGW, Chairman of Board of Directors, CEMASTEА, CEO CEMASTEА, Mrs. Jacinta Akatsa, HSC and guests from the Ministry of Education.



Chief guets during the opening and closing ceremonies. From left: Dr. Pius Mutisya, OGW, Chairman of Board of Directors, CEMASTEА Dr. William Sugut, Head - Senior School Directorate, Dr. Gichuhi Ndegwa, Deputy Head - Directorate of Policy, Partnership and East Africa Community Affairs, Regional Director of Education (RDE) Eastern Region, Mr. Fredrick Kiiru, Regional Director of Education Rift Valley, Mr. Milton Nzyoka

While
applauding

CEMASTEА for setting up very high standards in training for STEM, the guests emphasized the important role CEMASTEА plays in Training and Research.

The theme of the training was noted to provide an opportunity for in-depth discussion on various aspects such as: Evaluating lessons for effective teacher support, describing learner-centered approaches; Understanding lesson study; Developing strategies for teacher support; and appreciating the role of QASOs in supporting teachers.

The importance of collaboration and cohesion in enhancing the quality of STEM education was underscored. Participants were urged to provide leadership in the areas of their respective responsibility, noting the need for QASO's to support the JS teachers even as they carried out curriculum implementation. Quality Standards and Assurance Officers it was noted, provided pedagogical

leadership and monitoring curriculum delivery. Working collaboratively with the Ministry of Education would ensure 60% transition of the JS learners to the STEM pathway in Senior School would be achieved, which would eventually transform STEM education in Kenya.



Representing the Director of Quality Assurance and Standard, MoE: From left; Mary Mullu in Nakuru, Mr. Joseph Wambua in Kakamega and Mr. Lawrence Kaburu in Machakos

delivery. She noted that varied pedagogical skills help teachers tailor their lessons to meet different students' needs, thereby improving lesson delivery and learning experiences. She stressed that QASOs are essential in supporting teachers through school-based monitoring and providing timely feedback. This support extends to school administrators, ensuring quality education and effective governance.

Ms. Owoko reiterated that the training aimed to equip QASOs with the skills necessary to support teachers, particularly in STEM subjects. She called upon participants to maximize their engagement during the training to enhance their pedagogical skills and knowledge. The participants were encouraged to embrace long life learning and the importance of being abreast with the current technologies that would ensure that they meet the stakeholders' expectations. She encouraged QASOs to mentor and coach teachers in order to enhance curriculum delivery skills.



Mrs. Jacinta Akatsa, HSC addressing participants during the closing ceremony of the QASO workshop in Kakamega.

Representing the CEO CEMASTEIA in other regions were from left: Madam Lydia Muriithi, Deputy Director, CEMASTEIA in Nakuru,

It was evident that Quality and Standards Officers play an instrumental role to ensure sustainable implementation of STEM education in schools leading to effective and efficient Curriculum Implementation and the success of CBC. By ensuring quality in education which needed to regain its center stage for. This would depend not just on its planning and implementation but on continuous improvement using data and information from the field. Consequently, the collection and analysis of the data on the quality and standards of practices is feedback in education through sustained monitoring, evaluation and support of school leadership and instructional practices was an integral part of providing quality education in the implementation of CBC.

Participants were appreciated for their active participation and deliberations as the training had provided an opportunity for both participants and CEMASTEIA to reflect and strategize on how to ensure effective implementation of CBC and related activities in STEM education. They were challenged to dream big, practice what they have learnt and help ensure success in STEM education even as they went about their duties.

Following the training that had brought together, QASOs from MoE headquarters, Regional, County, and Sub-Counties across the 47 Counties, held in three Centres; Kakamega, Machakos and Nakuru, participants were able to evaluate lessons for effective teacher support at classroom level; Describe learner centered approaches that promote effective implementation of the curriculum; Demonstrate understanding of lesson study as a form of teacher support at school level; Develop strategies for teachers support at school level for improved learning outcomes; and Appreciate their role in supporting JS teachers at school level for effective curriculum implementation.

Science and Mathematics Teachers Pilot Symposium: Innovative Classroom Practices

By PKogolla/WMagu /Blessing Kemunto



Dr. Reuben N. Mugwuku Director of Teacher Professional Management, TSC addressing the teachers during the Symposium

CEMASTEA's primary mission is to continually enhance teacher proficiency in Pedagogical Content Knowledge (PCK) through In-Service Education and Training (INSET). Over time, CEMASTEAs has trained educators in learner-centered strategies such as Inquiry-Based Learning (IBL), Problem-Based Learning (PBL), Lesson study, and ICT integration for teaching and learning. During training, teachers model lessons and share their teaching and learning experiences.

Recently, a pilot symposium was held at CEMASTEAs on June 29, 2024, with the aim to inform the scaling up of this activity in subsequent years. The symposium targeted four counties: Nairobi, Machakos, Kiambu, and Kajiado. It brought together science and mathematics teachers from Junior Schools and Secondary Schools, along with other educators, to exchange best practices in the classroom.

The specific objectives of the symposium were to: Share innovative classroom practices; Facilitate knowledge and skill exchange among teachers for effective implementation of innovative approaches and Establish communities of practice among teachers, providing a platform for collaboration and networking through the CEMASTEAs website and portal. Participating teachers and stakeholders used the symposium as an opportunity to exchange ideas and collaborate on best classroom practices, aiming to enhance the quality of education provided to students. They explored innovative pedagogical approaches in science and mathematics education. Additionally, the forum allowed participants to connect with colleagues from different schools and regions, fostering community and collaboration within the education sector.

Overall, the science and mathematics teachers' symposium at CEMASTEAs serves as a valuable platform for professional growth, collaboration, and continuous improvement in STEM education. It contributes to advancing science, technology, engineering, and mathematics by facilitating the dissemination of discoveries and fostering dialogue among experts. Furthermore, the symposium aims to disseminate new insights into teaching and promote dialogue among educators. CEMASTEAs plans to regularly organize teacher symposiums, providing an opportunity for teachers to learn from one another, address challenges, and promote innovation to continuously improve their classroom practices.

This initiative is particularly important as Kenya transitions to the Competency-Based Curriculum (CBC), emphasizing competencies such as collaboration and communication skills. The symposium plays a crucial role in promoting innovative classroom practices for learning mathematics and science. During the one-day pilot symposium at CEMASTEAs, presentations of innovative lessons, as well as panel and plenary discussions on innovative classroom practices. Outstanding teachers who participated, prepared and recorded exemplary lessons, that identified outstanding innovations in the subject/learning area. were awarded.



Outstanding teachers in four categories receiving awards from CEO CEMASTEAs, Mrs. Jacinta Akatsa, HSC

From up:
Faith Maghas from Athi River Gk Prison School in Kajiado County

Daniel Njoroge from St. Josephine Bakhita Masinga in Machakos

Nathaniel Melita from Sholinke Primary And Junior School in Kajiado County

Jane Francisca Sakwa from Pangani Girls School in Nairobi County

The Future is Stem: Talent Development in CEMASTEA

By Makoba Kizito, Blessing Kemunto and Winfred Magu



Mr. Kizito Makoba, STEM Coordinator, CEMASTEA making a presentation on Talent Development and STEM Education in achieving National Development during the 3rd Third Multisectoral Conference and Exhibitions on Research, Science, Technology, and Innovation

The Centre participated in the Third Multispectral Conference and Exhibitions on Research, Science, Technology, and Innovation. The conference was held from May 7–10, 2024, at the Safari Park Hotel in Kasarani, with the topic "Science, Technology, and Innovation as the Game Changer for National Security and Sustainable Prosperity," by the National Commission for Science, Technology, and Innovation (NACOSTI).

Kenya's future is brightened by CEMASTEA's dedication to nurturing the potential of the next generation in STEM fields. CEMASTEA equips students with the necessary skills and fosters a passion of creativity, enabling them to become resourceful individuals capable of devising solutions to the pressing issues confronting the nation. Mr. Makoba Kizito, coordinator of STEM innovations, presented the CEMASTEA's paper on behalf of the CEO. The presentation was on the role of talent development and STEAM education in achieving national development goals.

According to Mr. Kizito, the purpose of STEM is to utilize the next generation to enhance the talent of the country. Additionally, because the institution is focused on STEM education, it emphasizes the value of developing students' talents through a variety of channels, including teaching and school leadership, which allows them to create their own career path. CEMASTEA aims to develop STEM education capacity in Africa through training, research, innovation, and partnerships with ecosystems, empowering young learners to realize their talents and become resourceful individuals for sustainable development.

The coordinator highlighted that CEMASTEA not only has teachers training programmes that are suitable in nurturing talents from primary and secondary school levels but also takes the initiative of monitoring and supporting them from their schools.

The next crucial facets of developing talent are STEM robotics boot camps and school visits. Learners can engage in these scenarios and get much more by using various learning tactics in a hands-on manner. Mr. Makoba reiterated that by encouraging students to use their imagination, creativity, and critical thinking abilities, CEMASTEA place-based learning improves their ability to innovate. STEM on Wheels is a CEMASTEA bus that functions as a mobile lab and is furnished with all the equipment required by students, according to Mr. Makoba Kizito during the conference.

CEMASTEA collaborates with the University of Waterloo and the University of Nairobi to carry out STEM projects that are designed to give students problem-solving skills. As a result, twelve students were eligible to advance to the STEM-based Olympiads' next phase. Makoba said that "this Olympiad gives teachers opportunity to train on how to develop items that promote problem solving skills."

Another method to foster talent development through STEM education is the centre's adding of robots to the 13th category of the Kenya Science and Engineering Fair. This gives students the chance to take part in the Fair and showcase their creativity. He pointed out that encouraging Education for Sustainable Development (ESD) in students adds values to their everyday life and the capacity to make connections between what they study and real experiences; as a result, insecurity would decrease and solutions will be developed for the country, particularly in the job sector.

The focus placed by CEMASTEA on hands-on learning, collaboration with many stakeholders, and practical problem-solving abilities ensures that Kenya's youth are equipped to steer the nation towards a safer and more sustainable future.

GLOBAL PARTNERSHIPS: CEMASTEА and JICA Redefining Teacher Training

By Clotilda Nyongesa

CEMASTEА, operating under the auspices of the Ministry of Education, stands as a beacon of innovation and collaboration in pedagogical advancement. Tasked with researching and training teachers in pedagogical content knowledge, CEMASTEА's reach extends far beyond national borders, striving to enhance the skill sets of National Trainers on a global scale. At the heart of this International Cooperation Strengthening program implemented by the Ministry of Education, CEMASTEА's reach extends far beyond national borders, striving to enhance the skill sets of National Trainers on a global scale. At the heart of this International Cooperation Strengthening program implemented by the Ministry of Education,



Ministry of Education, pedagogical advancement. pedagogical content national borders, striving to scale. At the heart of this International Cooperation Strengthening, program implemented by

JICA's commitment to capacity building has been instrumental in empowering national trainers, both in Kenya and through immersive experiences in Japan. Central to this collaboration is the Knowledge Co-Creation Programme (KCCP), that focuses on mutual learning fostering reciprocal relationships between developed and developing nations. This ethos of shared knowledge and growth was exemplified in the recent KCCP session held from October to November, 2023. Drawing participation from ten diverse countries including Egypt, Malawi, Kenya, Southern Sudan, Mongolia, the Philippines, Jamaica, Bangladesh and Palestine, the program facilitated vibrant exchanges on formative assessment practices. Participants were immersed in discussions and field visits to Japanese classrooms, gaining invaluable insights into the dynamic educational landscape of Japan.

A highlight of the experience was the exploration of "MITORI," a base of Japanese educational practice. MITORI typifies a learner-centered approach, nurturing critical thinking skills by empowering teachers to discern and interpret the slightest cues from learners during the learning process. This nuanced understanding informs instructional decisions, driving meaningful progress towards lesson objectives. During our experience, we explored 'MITORI,' a fundamental aspect of Japanese educational practice. MITORI embodies a learner-focused approach, where teachers empower learners holistically, by carefully observing and interpreting the slightest cues from learners throughout the learning journey. This deep understanding guides instructional choices, leading to meaningful progress in achieving the learning outcomes.

Building on these invaluable insights, CEMASTEА has embarked on a transformative journey to tailor content for nationwide teacher training initiatives. This initiative places a strong emphasis on pedagogical content knowledge especially learner-centered practices, aligning with the implementation of the Competency-Based Curriculum (CBC) at the Junior School (JS) level, as guided by the Basic Education Curriculum Framework (BECF). Recognizing the pivotal role of highly knowledgeable and reflective teachers in effectively delivering the curriculum,

CEMASTEА's tailored modules are thoughtfully designed to address the specific challenges faced by Junior School teachers. The training model typically follows a smart cascade, complemented by monitoring support and continuous learning. This approach ensures the practicability and effectiveness of the training materials within the classroom context, creating an environment conducive to learner success and holistic growth.

As CEMASTEА continues to pioneer innovative approaches to teacher development, its partnership with JICA serves as a beacon of collaboration and excellence, transcending borders to empower educators and nurture the next generation of global citizens.

AESOP'S FABLES: THE BUNDLE OF STICKS

Once upon a time, the Frogs were discontented because they had no one to rule over them: so they sent a deputation to Jupiter to ask him to give them a King. Jupiter, despising the folly of their request, cast a log into the pool where they lived, and said that the log should be their King. The Frogs were terrified at first by the splash, and scuttled away into the deepest parts of the pool; but gradually, when they saw that the log remained motionless, one by one they began to venture to the surface again, and before long, growing bolder, they began to feel such contempt for the log that they even took to sitting on it. Thinking that a King of that sort was an insult to their dignity, they sent to Jupiter a second time, and begged him to take away the sluggish King he had given them, and to give them another and a better one. Jupiter, annoyed at being pestered in this way, sent a Stork to rule over them. No sooner had the Stork arrived among them than he began to catch and eat the Frogs as fast as he could.



Moral Lesson: 'When you seek to change your condition, be sure that you can better it.'

Source: [The Best Fables by Aesop Everyone Should Know – Interesting Literature](#)

RECIPE: PAN FRIED TILAPIA

By MNamunyak

Tilapia is a versatile white fish with a mild flavor, making it a great choice for various dishes.

Ingredients:

- 2 tilapia fillets
- Salt and pepper, to taste
- 1/2 cup all-purpose flour
- 1 teaspoon paprika
- 2 tablespoons olive oil
- Lemon wedges for serving

Instructions:

Season the Tilapia:

- Pat the tilapia fillets dry with paper towels.
- Season both sides with salt and pepper.

Prepare the Coating:

- In a shallow dish, mix the flour and paprika.
- Dredge each fillet in the flour mixture, shaking off any excess.

Pan-Fry the Tilapia:

- Heat olive oil in a non-stick skillet over medium-high heat.
- Add the coated tilapia fillets to the skillet.
- Cook for about 5-6 minutes per side or until golden brown and crispy.
- Adjust the cooking time based on the thickness of the fillets.

Serve:

- Remove the tilapia from the skillet and place on a plate lined with paper towels to absorb any excess oil. Serve hot with lemon wedges on the side.



STEM ON WHEELS

POPULARIZING SCIENCE AND MATHEMATICS THROUGH OUTREACH

< People Daily 14th June 2024



12 NEWS BEAT

PEOPLE DAILY / Friday, June 14, 2024



CEMASTEА to empower JSS teachers and learners on STEM. COURTESY

Agency conducts STEM outreach programme

The Centre for Mathematics, Science, and Technology Education in Africa (CEMASTEА) is conducting an outreach programme across the country to equip Junior Secondary School (JSS) teachers and learners with knowledge and practical skills in Science, Technology, Engineering and Mathematics (STEM) learning areas.

The agency encourages use of locally available materials in the learning of concepts in STEM subjects. Manipulating the learning resources enables the learners to be creative and imaginative hence acquiring skills needed in the 21st Century.

The school outreach covers STEM subjects that include mathematics, integrated sciences (biology, physics and

chemistry) and pre-technical studies in Junior School.

CEMASTEА officials who were equipped with computers, laboratory equipment and other innovative materials engaged with learners in various schools in Garissa to inspire and equip them with the skills and knowledge necessary to enrol in STEM subjects.

STEM pathway

Amma Shaarbaidi, a CEMASTEА trainer said that CEMASTEА focuses on the STEM pathway because the intention as a country is to have 60 per cent of the learners transitioning in the STEM pathway.

"For the attainment of the 60 percent transition to STEM pathway, there is a

need to sensitize both the teachers and learners in terms of these subjects. We have brought activities and learning resources for the learners to interact with in order to arouse interest and curiosity to learn the STEM subjects," Amma said.

Timothy Masanja, a teacher at Ifiti Junior School said that from what he has learnt from CEMASTEА, he will be able to incorporate learner experiences with his knowledge in teaching to realize a maximum output.

"CEMASTEА has equipped us with practical skills. We have learnt new ways of tackling concepts in the STEM learning areas and in enhancing learner engagement. We shall explore new ways of involving learners in the learning process," he said.



Activity photos from different Counties during the STEM Outreaches

THE CEMASTE A SERVICE CHARTER



MINISTRY OF EDUCATION



CEMASTE A CITIZEN SERVICE DELIVERY CHARTER

VISION

An empowered Science, Technology, Engineering and Mathematics (STEM) literate society

MISSION

To continuously develop competencies for sustainable development through training, research and innovation in STEM education

CORE VALUES

Professionalism; Excellence; Inclusivity; Innovation; Integrity; Quality Customer Service

SERVICE	SERVICE COMMITMENT	REQUIREMENT TO OBTAIN SERVICE	COST OF SERVICE /GOOD	TIMELINE	RESPONSIBLE OFFICE(S)
PROVISION OF INFORMATION	RESPONDING TO INQUIRIES	- IDENTIFY SELF - CLEAR ENQUIRY OR COMMUNICATION	NIL	IMMEDIATE	CUSTOMER CARE OFFICERS
	ACKNOWLEDGE ALL CORRESPONDENCES	CLEAR COMMUNICATION AND CONTACT	NIL	IMMEDIATE	CEO
	RESPOND TO CORRESPONDENCES (LETTERS/EMAILS)	CLEAR COMMUNICATION AND CONTACT	NIL	1 WORKING DAYS	CEO
	RECEIVE AND RESOLVE COMPLAINTS	GIVE PRECISE INFORMATION ON THE COMPLAINT AND CONTACT	NIL	30 DAYS	CEO/ CHAIR SERVICE DELIVERY
TRAINING	COMMUNICATE TO RELEVANT OFFICE(S) TO INVITE PARTICIPANTS TO ATTEND TRAINING	NIL	NIL	3 WEEKS BEFORE COMMENCEMENT OF TRAINING	CEO/ HEAD OF TRAINING
	ISSUE CERTIFICATES FOR FACE-TO-FACE TRAINING BY CEMASTE A	ADHERENCE TO CERTIFICATION GUIDELINES	NIL	14 DAYS AFTER TRAINING	HEAD OF TRAINING
	ISSUE CERTIFICATES FOR ONLINE TRAINING BY CEMASTE A	ADHERENCE TO CERTIFICATION GUIDELINES	NIL	40 DAYS AFTER TRAINING	HEAD OF TRAINING
	CONSULTANCY IN TRAINING	WRITTEN REQUEST	APPLICABLE CHARGES	AS PER AGREEMENT	CEO/ HEAD OF TRAINING
RESEARCH	CONSULTANCY IN RESEARCH	WRITTEN REQUEST	APPLICABLE CHARGES	AS PER AGREED RESEARCH WORK PLAN	CEO/ HEAD OF RESEARCH
	CONSULTANCY IN MONITORING AND EVALUATION SERVICES	WRITTEN REQUEST	APPLICABLE CHARGES	AS PER AGREEMENT	CEO/ HEAD OF RESEARCH
	DISSEMINATE RESEARCH REPORTS	NIL	NIL	3 MONTHS AFTER DATA COLLECTION	CEO/ HEAD OF RESEARCH
PAYMENT	PAYMENT FOR SUPPLY OF GOODS, WORKS AND SERVICES	SUBMIT ALL RELEVANT PAYMENT DOCUMENTS	NIL	30 DAYS	CEO/ FINANCE OFFICER
HOSPITALITY	PROVISION OF CONFERENCE, CATERING AND ACCOMMODATION SERVICES	CLEAR REQUEST	APPLICABLE CHARGES	1 WEEK RESERVATION	CEO/HEAD OF HOSPITALITY
PARTNERSHIPS AND LINKAGES	ESTABLISHMENT OF PARTNERSHIPS	PROVISION OF RELEVANT DOCUMENTS	NIL	3 months	CEO/ HEAD PARTNERSHIPS AND LINKAGES
	IMPLEMENTATION OF AGREED PROJECTS/ ACTIVITIES	PROVISION OF AGREED RESOURCES	NIL	AS STIPULATED IN THE CONTRACT	
LIBRARY	ACCESS TO LIBRARY SERVICES (PRINT AND E-RESOURCES)	REGISTRATION	NIL	REAL TIME	LIBRARIAN

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, CEMASTE A

J. Akatsa
10th JANUARY 2023

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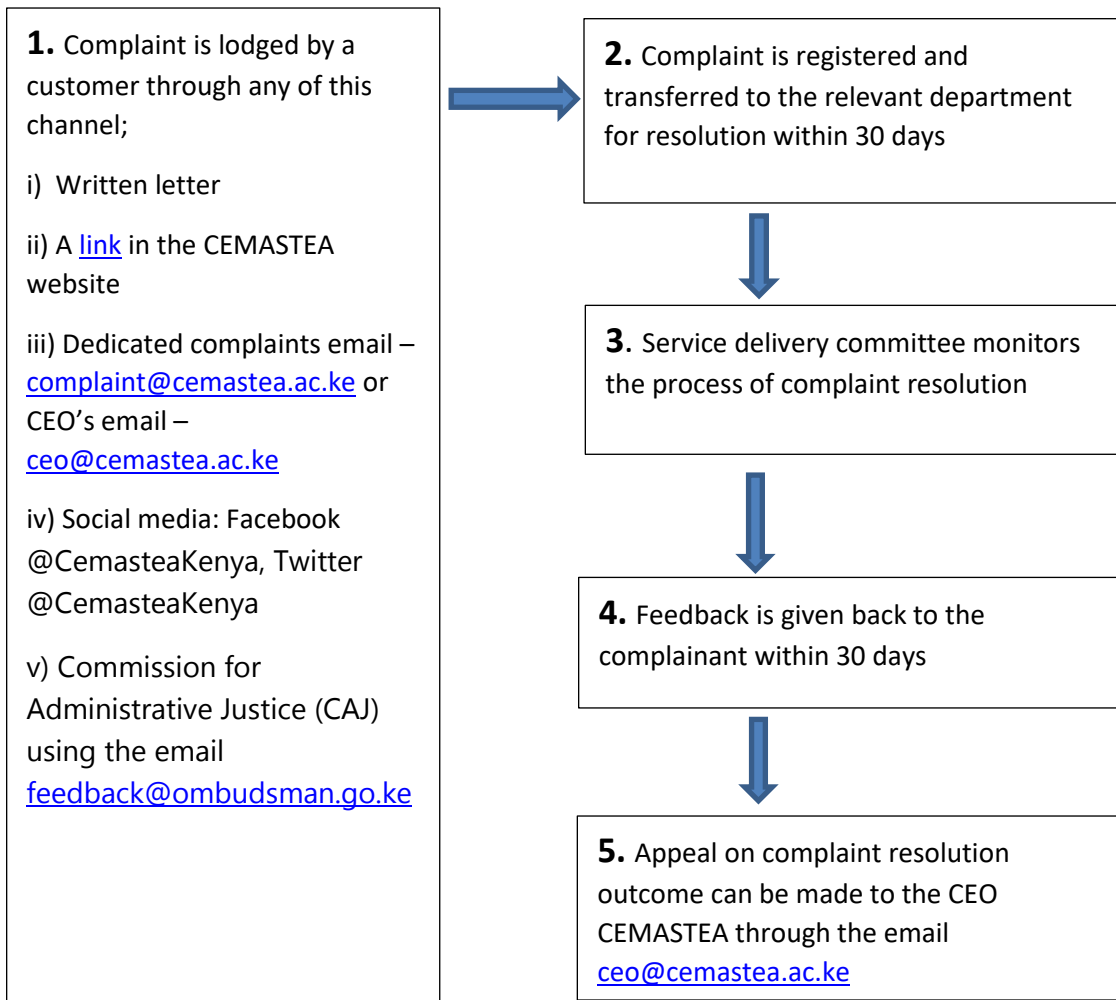
THE COMMISSION SECRETARY / CHIEF EXECUTIVE OFFICER
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HUDUMA BORA NI HAKI YAKO



ISO 9001:2015 CERTIFIED

CEMASTEA CUSTOMER COMPLAINTS HANDLING PROCEDURE



CEMASTEA commits to provide quality services in a courteous manner

and

in case of complaints, resolve the complaints and give feedback within 30 days

Encouraging Word



PROPHET MOHAMMAD (PBUH) SAID: "THERE ARE TWO BLESSINGS WHICH MANY PEOPLE LOSE: (THEY ARE) HEALTH AND FREE TIME FOR DOING GOOD."
(BUKHARI 8/421)



Commit to the LORD whatever you do, and he will establish your plans.
Proverbs 16:3

KEEPING THE PROMISE: TRACKING THE PROGRESS OF GROWING TREES



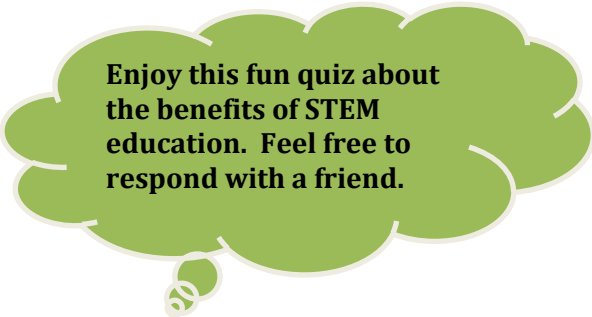
Guests planting trees at CEMASTEA trees during the Launch of the CEMASTEA Strategic Plan 2023-2027



Professor Vandeburg and Hon. Wilson Korir from the University of Waterloo planting a tree following a visit to CEMASTEA



Tree planting in Nyandarua and Samburu Counties during JS monitoring and evaluation activities



What does STEM stand for?

A) Science, Technology, English, Mathematics
B) Social Studies, Technology, Engineering, Music
C) Science, Technology, Engineering, Mathematics

Which benefit of STEM education encourages students to explore and invent?

A) Real-world applications
B) Hands-on learning
C) Creativity

How does STEM contribute to equality in education?

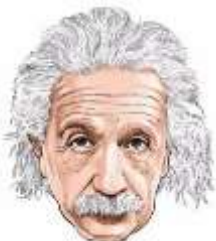
A) By promoting equal opportunities for all students
B) By focusing only on science and mathematics
C) By excluding students from diverse backgrounds
D) By emphasizing memorization over understanding

Why is resilience important in STEM?

A) To memorize formulas
B) To overcome challenges
C) To avoid collaboration
D) To discourage creativity

Which skill does STEM education develop?

A) Memorization
B) Critical thinking
C) Following instructions blindly



.....Albert Einstein Once Said...

**... I Would Spend 55 Minutes
Defining the Problem and Then
Five Minutes Solving It.....**



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