

Editor's Note [Volume 26 No. 6 (2026)]

Cultivating Minds Early - Elementary Agriculture as a Foundation for the 4K Competencies and Lifelong Learning

Although I did not study agriculture in school or college, I found myself so fascinated by it that I have come to the conclusion that it needed to be a cross-cutting subject for every citizen to take to assist in lifelong living.

As governments strive to prepare learners for an increasingly complex and interconnected world, education systems are shifting from knowledge acquisition to competency development. In Kenya and many other African countries, the Competency-Based Curriculum (CBC) embraces this transformation through the cultivation of the four essential learning competencies - **Critical Thinking, Creativity, Communication, and Collaboration (4K)**. While these competencies can be nurtured across many disciplines, few subjects provide as authentic and engaging a platform as agriculture.

Agriculture has traditionally been perceived as an occupation rather than an academic discipline. Yet this perception overlooks its immense educational value. Agriculture is a multidisciplinary science that integrates biology, ecology, nutrition, environmental science, mathematics, economics, and technology. When introduced in elementary school, it becomes a powerful vehicle for developing both academic competence and practical life skills that enhance learning throughout secondary school, university, and professional life.

School gardens, demonstration plots, and simple agricultural experiments transform learning into an active process. They enable children to connect classroom concepts with everyday life while simultaneously nurturing the competencies that modern education seeks to develop.

Critical thinking flourishes when learners investigate why one crop performs better than another, diagnose pest infestations, compare soil types, or explore methods of conserving water under changing climatic conditions. Rather than memorizing facts, children learn to ask questions, collect evidence, analyze observations, and make informed decisions. These inquiry skills underpin success in science, mathematics, engineering, and research at higher levels of education. Even now, there is obsession with understanding how the food we eat impacts our health, throughout the lifecycle.



Agriculture also inspires **creativity**. Learners experiment with innovative gardening methods, recycle household materials into planting containers, design irrigation systems, develop composting techniques, and create solutions to local production challenges. Such experiences encourage innovation from an early age and foster an entrepreneurial mindset that will be increasingly important in transforming African agriculture into a modern, technology-driven sector.

Equally important is **communication**. Agricultural activities require learners to maintain records, present project findings, explain farming practices, debate environmental issues, and share observations with classmates and their communities. Through these activities, children strengthen literacy, scientific communication, and confidence in expressing ideas—skills essential for academic success and future leadership.

Perhaps no subject illustrates **collaboration** more naturally than agriculture. Establishing and maintaining a school garden requires teamwork, shared responsibility, planning, and mutual accountability. Learners appreciate that success depends on cooperation, whether in preparing land, watering crops, controlling pests, or harvesting produce or taking care of livestock. These experiences mirror the collaborative approaches increasingly required in scientific research, agribusiness, public health, and community development.

Beyond the 4K competencies, elementary agriculture strengthens foundational learning across the curriculum. Measuring planting distances and calculating fertilizer or feed requirements reinforce mathematics. Observing plant/animal growth introduces biological sciences. Understanding weather patterns builds environmental literacy. Recording field observations enhances reading and writing skills. Nutrition education links food production to healthy diets, encouraging informed food choices while supporting improved concentration and academic performance.

Importantly, early agricultural education also reshapes perceptions of agriculture itself. Too often, young people associate farming with hardship rather than opportunity. Exposure to modern agricultural science reveals pathways into food technology, biotechnology, environmental management, agribusiness, agricultural engineering, nutrition, veterinary medicine, and climate-smart agriculture. Learners begin to appreciate agriculture as a dynamic knowledge economy capable of driving employment, innovation, and national development.

For Africa, where agriculture remains central to livelihoods and food security, agricultural literacy should not be confined to future farmers alone. Every citizen benefits from understanding food systems, environmental sustainability, and the relationship between agriculture, nutrition, health, and economic development. Future policymakers, teachers, doctors, engineers, entrepreneurs, and journalists all require this foundational understanding if they are to make informed decisions in an increasingly food-insecure and climate-vulnerable world.

Realizing this vision demands more than introducing agriculture as another classroom subject. Schools require functional gardens that serve as outdoor laboratories, teachers equipped to facilitate experiential learning, and partnerships with farming communities, research institutions, and extension services. Agricultural learning should be integrated across science, mathematics, health, environmental education, and life skills so that competencies are reinforced through authentic experiences rather than isolated lessons.

The investment is modest, yet the returns are profound. Children who learn agriculture early acquire not only scientific knowledge but also the habits of inquiry, innovation, teamwork, communication, and responsible citizenship. They become better prepared for higher education and better equipped to address the complex challenges of food insecurity, climate change, malnutrition, and sustainable development.

The harvest from elementary agriculture extends far beyond crops. It cultivates minds capable of critical thinking, creative innovation, effective communication, and meaningful collaboration—the very competencies required to build resilient food systems and prosperous societies. As Africa looks to the future, strengthening agricultural education in elementary schools may be one of the wisest investments it can make in its people and its development.

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We have 14 thoroughly reviewed manuscripts in this issue.

