'Science is our natural world'

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bridging in-school and extra-curricular STEM educational opportunities.

Students become familiar and interested in entering STEM-related degrees and professional qualifications and careers.

Interestingly, in the educational development process, the STEM revolution also emphasises encouraging students from groups under-represented in STEM fields, for example women and students in rural schools are encouraged to venture into these careers.

STEM education at University level

In the broader definition, students study for STEM degrees in the fields of Life Sciences, Chemistry, Computer and Information Technology Sciences, various fields of Engineering, Geo-Sciences, Mathematical Sciences, Physics and Astronomy, etc.

Why STEM?

STEM education has many potential benefits for individuals and the nation as a whole. All of the STEM education is to meet a need. The need and demand for a workforce with STEM-related skills will increase with time.

This is one of the ways to resuscitate our economy and industries in Zimbabwe. According to the National Science Foundation of the United States of America, about 80 percent of the jobs that will be created in the next decade will demand the use of Mathematics and or Science skills.

More importantly, research has shown that individuals who work in a STEM-related field earn as much as 26 percent more than their counterparts. In order to meet the increasingly rigorous and technically focused demands of 21st century living, there is a push in the world to engage our youth in STEM education.

STEM disciplines affect virtually every component of our everyday lives, thereby making it imperative to equip the future generation leaders with requisite 21st century skills and competencies.

How often do we experience STEM in our lives?

Science is our natural world — sun, moon and stars; lands and oceans; weather, natural disasters, the diversity of nature, animals (large, small, microbial); plants and food; the fuel that heats our homes and powers transportation; the list is almost endless.

In today's world, technology means computers, smartphones and the like but it goes back to television, radio, microscopes, telegraph, telescopes, the compass, and even the first wheel.

Engineering designs buildings, roads and bridges but it also tackles today's challenges of transportation, global warming and environment-friendly machines, appliances and systems.

We only have to look around to see what improvements to our lives and our homes have been engineered in the last decade alone.

We encounter Mathematics at the grocery store, the bank, on tax forms, in dealing with investments and the family budget.

Every other STEM field depends on Mathematics.

Therefore STEM is important because it pervades every aspect of our lives.

What students learn about the Science disciplines, Technology, Engineering and Mathematics during their STEM schooling shapes their intellectual development, opportunities for future study, choice of careers, creativity and innovation, as well as their capacity to make informed decisions on political and civic issues.

One factor that sets STEM apart from other branches of academic study for many policy makers is that literacy in STEM subjects is important both for the personal well-being of each citizen and for the nation's competitiveness in the global economy.

Nations invest in innovation to promote sustainable economic growth and only innovation-driven growth has the potential to create value-added jobs and industries.

Innovation is largely derived from advances in the Science, Technology, Engineering, and Mathematics disciplines and therefore an increasing number of jobs at all levels require STEM knowledge.

Innovation involves the integration of diverse STEM skills and transcends disciplines. STEM education prepares students for a lifetime of innovation and exploration. STEM plays an increasingly important role in addressing critical needs of society and generating innovation that drives the global economy.

Therefore, STEM education is vital to our future, the future of our country, the future of our region and the future of our children.

It is everywhere, it shapes our everyday experiences and therefore we need to encourage the students currently in our educational systems as well as future generations to understand and embrace the curricula that affects them everyday.

Policymakers, administrators, parents and school authorities if we give our youth the tools to succeed in STEM, we will be giving them a huge advantage in their future and the future of this country.

The success of STEM education depends on many factors and stakeholders.

Is Zimbabwe ready to embrace STEM education? Our next discussion.

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Pacesetter: Mutare Polytechnic

Mutare Polytechnic Principal Ms P Watema

As the "Pacesetter", Mutare Polytechnic is known for addressing its mandate of human capital development through Competence Based Education (CBET). Implementation of this demand driven approach has effectively embraced STEM, through the production of innovative products ,redesigning and re-engineering to produce improved and more efficient products and mechanisms.
Product achievements of Mutare Polytechnic Biogas-Applied Sciences Department
Solar Energy — Engineering Division, Clothing Manufacturing Factory — Clothing Department, Solar Controlled Robot System-Electrical Department.
Manufacturing of Furniture — Wood Department, Construction Works — Construction Department, Researches Carried Out
Topic: 1 Design of a veneer conveying system for subsequent throughput increase in veneer production: A case study of Border Timbers.
Topic:2 An integrated approach to wood waste utilisation to produce briquettes, being a case study of Allied Timbers Zimbabwe — Mutare Factory.
Topic:3 An investigation into bamboo strength properties for its complementary role in both furniture making and constructional works. A Zimbabwean situation.
Topic:4 Exploring Mususu tree as an alternative source of timber for furniture and farm implements.
Topic:5 Development of a cutter for a six cutter planner moulder to improve on production yield at Allied Timbers Holdings — Mutare Factory.
Accolades
2015 Megafest Top 20 Organisation of The Year Award, Position 15
2015 Megafest Best Training Institution of The Year Award.
2015 Manicaland Agricultural Show Best Non-Profit making stand.
2014 ZNCC Award for Collaboration between Business and Education.
2014 ZNCC Human Resources Development.
2014 ZNCC 1st Runner in the Top Training Institutions.
2014 ZNCC Principal of The Year.
2014 Sanganai/Hhlanganai Best Training Institution of The Year Award.
2014 Megafest Best Training Institution of The Year.
2014 Manicaland Agricultural Show Best Exhibit in Adult Cookery
2014 Manicaland Agricultural Show Best Non-profit making stand award.