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WHAT IS STEAM EDUCATION ?

The ever-evolving landscape of education, one term has gained increasing prominence in recent years - "STEAM." It is not merely an acronym; it represents a transformative approach to learning that has the power to shape the future of education.

Welcome to the world of STEAM Education, where Science, Technology, Engineering, Arts, and Mathematics converge to ignite young minds and prepare them for a world defined by innovation, creativity, and problem-solving.

STEAM Education utilizes Science, Technology, Engineering, Arts, and Mathematics to guide student learning through inquiry, dialogue, and critical thinking. STEAM activities foster problem-solving, critical thinking, creativity, innovation, collaboration, and communication skills.

The integration of these subjects promotes deeper learning, allowing students to grasp topics thoroughly and take ownership



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Science

The Natural environment where everything comes from

Technology

Tools and innovative devices, that we use to simplify processes and enhance abilities

Engineering

Purposeful innovation, creation and analysis

Arts

Humanities, ethics, ideals and expressions

Mathematics

Identifying patterns, interpreting data,
producing measurements, managing
finance



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Equity in STEAM education

Equity in STEAM education is not merely an aspiration; it is an imperative. It embodies the fundamental principle that every student, regardless of their background, should have equal access to the enriching opportunities offered by Science, Technology, Engineering, Arts, and Mathematics.

Equity in STEAM Education acknowledges that talent and potential are distributed universally, but opportunities are not.

It calls for breaking down barriers that have historically limited access to quality education and empowering underrepresented groups, including women, minorities, and economically disadvantaged individuals, to participate fully in the STEAM disciplines.

Ensuring equity in STEAM education is not only a moral imperative but also a strategic investment in our collective future, as it harnesses the diverse perspectives and talents of all, driving innovation, and progress in an increasingly complex and interconnected world.

Contrary to the misconception that STEAM is expensive and challenging to implement in traditional classrooms, the document seeks to change this perception. It emphasizes using



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affordable and recyclable materials to teach STEAM concepts effectively.

It promotes low-tech or Non-Tech activities in teaching STEAM

Why low and no-tech activities in STEAM ?

Low and no-tech activities in STEAM education are essential for several reasons. Firstly, these activities are more accessible and cost-effective, making them feasible for resource-constrained communities where access to advanced technology and infrastructure can be limited.

They enable students to engage in hands-on learning experiences that do not rely on expensive equipment or internet connectivity, ensuring that education remains inclusive and equitable. Additionally, low and no-tech STEAM activities foster creativity and problem-solving skills by encouraging students to innovate with the materials they have readily available, promoting a culture of resourcefulness.

They also respect local contexts and traditions, allowing students to connect their learning to their communities, thus making education more relevant and impactful.



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In essence, integrating low and no-tech activities into STEAM education in Africa not only overcomes infrastructure challenges but also empowers students to become resilient, adaptable, and imaginative learners in a rapidly changing world.

Examples of Non Tech Activities

STEAM activities engage students with practical exercises that involve experimentation and exploration. Here are a few examples:

Paper Planes Challenge

Design, create, and test a paper airplane for maximum distance or time in the air. Learn about lift, drag, and propulsion.

Popsicle Stick Tower Competition

Build the tallest tower possible using only popsicle sticks and hot gum. Learn about structural engineering and stability.

Balloon Rockets

Create a balloon-powered rocket to learn about Newton's Third Law of Motion.

Nature Walk and Journaling



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Explore the natural world and journal your discoveries. Observe, draw, or take photos of plants and animals, and learn about biology, ecology, and environmental science.

BENEFITS OF STEAM EDUCATION

Integrating STEAM education creates a wide range of benefits that can positively impact students, educators, and society:

- **Creativity and Inspiration:** STEAM Challenges student's creativity and inspiration through exploration and experimentation in real world projects.
- **Critical and Analytical Thinking:** STEAM Stimulate students to develop analytical and critical thinking skills, preparing them for future challenges in a competitive and risk ridden job market.
- **Communication and Collaboration:** STEAM helps students learn to work in groups, communicate their ideas effectively, and jointly solve problems with others



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GROUP ACTIVITY

DEVELOP A NON TECH STEAM ACTIVITIES USING THE MATERIAL ON THE TABLE TO EXPLAIN THE FOLLOWING CONCEPTS

- MOTION
- FLOATATION
- BALANCE
- GRAVITY

STEAM is so important because it ignites the imagination and sets the soul on fire. It allows students create endless ideas. And allow students explore the world through their fingertips! The possibilities that it provides for learning are limitless.

Kelley Bradshaw