



**Ministerial Statement
To The Senate**

By

Senator Jason Hayward , JP
Junior Minister of Education and Workforce Development

STEAM Education in Public Primary Schools

Wednesday, June 13th, 2018

Madam President,

I am pleased this morning to provide the Senate with a high level plan on the implementation of STEAM Education (Science, Technology, Engineering, Art, and Mathematics), at the primary level in the Bermuda Public School System.

Madam President,

Let me first share that STEAM Education is defined as an educational approach to learning that uses Science, Technology, Engineering, the Arts and Mathematics as access points for guiding student inquiry, dialogue and critical thinking. This methodology facilitates a learning environment where students take thoughtful risks, engage in experiential learning, persist in problem-solving, embrace collaboration, and work through creative processes.

Madam President,

STEAM Education is an approach that shifts teachers away from the typical teacher-centred classroom learning environment into collaborative project work and creative problem-solving with students. Research shows that engaging children in learning of both novelty and discovery, positively impacts their behavior and causes them to exercise self-control and to self-regulate.

Madam President,

The implementation of STEAM Education aligns with the Department of Education's Strategic Plan for public school education; and directly supports four of the five Strategic Priorities in Plan 2022, namely:

- i) Increasing Academic Rigour and Student Engagement;
- ii) Ensuring Career, College, and Workforce Readiness;
- iii) Enhancing the Quality of Teacher Practice and System Leadership; and,
- iv) Improving Infrastructure and Instructional Resources.

In support of the Government's mid-term platform promise "to provide exposure to STEAM Education at the primary school level", the Department of Education undertook research that identified the 'Engineering Is Elementary (EiE)' curriculum – a science component of STEAM Education, as the best fit for primary school students. The Engineering Is Elementary curriculum was selected because the curriculum is universally designed to meet the needs of all learners. Students move step-by-step through a goal-directed problem-solving process. This curriculum is also aligned with the Cambridge International Science Curriculum.

Madam President,

The implementation of STEAM Education at the primary school level will add to what has been already started at the middle and senior school levels with STEM 101. The STEAM EiE curriculum will enable students to have an exciting hands-on approach to learning. Students' experiences show that they learn how to blend the mind of a scientist and technology experts with that of an artist or designer.

Madam President,

During this 2017/18 school term, a Pilot of the STEAM Engineering is Elementary, or EiE curriculum was undertaken in four primary schools - West Pembroke, Paget, Northlands and Prospect Primary Schools. Implementation is being monitored by

education officers and at the end of the school year, officers will report out to principals about the progress with the programme.

Madam President,

Classroom observations conducted thus far reveal that students are excited to:

- engage in the engineering challenges
- problem solve
- learn about different Engineer roles in today's world
- learn terminology in different languages
- think like an Engineer

Madam President,

In the longer term, the implementation of the EiE curriculum for all primary schools will be structured in three phases and operational plans will be developed at each phase for execution. The first phase, which extends the 2018/19 school year commences in September 2018, and will include the four schools currently participating in the Pilot plus two additional primary schools. These six primary schools will receive differentiated instructional support and professional development training in July and again in September 2018. The Department of Education's technical officers that is, the Gifted and Talented Education Officer, the Acting Director of Curriculum and Assessment, and the Director of Academics will guide and support the primary school teachers during the implementation of the EiE curriculum. They will also monitor and evaluate the EiE programme on a bi-weekly basis.

Madam President,

Phase two of the STEAM implementation will begin in September 2019 with six (6) more primary schools receiving differentiated and integrated instructional supports

and professional development/training in June and September 2019. Increased primary school implementation of the EiE curriculum will be applied where schools choose and integrate units of their choice. Lastly, phase three will follow the same implementation plan during the 2020/21 school year, with the remaining six primary schools receiving professional development training and the instructional resources for implementation. At phase three, all eighteen primary schools will be fully engaged with STEAM curricula using the EiE application.

Madam President,

The annual cost of implementing each phase is estimated at \$125,000. This includes the cost of the EiE resource kits for each school, initial training for teachers, and on-going professional development for teachers during the course of each school year, which will ensure fidelity in delivering the STEAM programme. Professional development sessions will be facilitated by EiE representatives using a train the trainer model. The focus will be the developmental stages of lower and upper primary students and afford teachers the opportunity to facilitate STEAM pedagogy constructs for Contextual Learning and Problem Solving; Collaborative Learning and Teamwork; and Project-based Learning.

Madam President,

The success and sustainability of STEAM Education at the primary school level will be supported by a consistent commitment of economic, environmental and social partnerships with stakeholders. This Government has pledged to making education a priority and will ensure the Department of Education has the necessary resources to develop a culture that steers the success of each student.

Thank you **Madam President.**