

TRINIDAD & TOBAGO STEM PROGRAMME

OVERVIEW AND FAQS



The Trinidad and Tobago STEM Programme is sponsored by
Shell Trinidad & Tobago Limited

TRINIDAD & TOBAGO STEM PROGRAMME

Developing confident, knowledgeable and innovative students better equipped to confront social challenges and contribute to economic diversification.

Through the support of Shell Trinidad, students around Trinidad and more recently Tobago are being exposed to STEM and STEM based learning from an early age. The Trinidad and Tobago STEM programme creates a unique hands-on learning environment for students towards the cultivation of a heightened awareness, interest and competence in STEM subjects and careers.

TRINIDAD & TOBAGO CONTEXT

Shell has recognized the need for a comprehensive programme to consolidate critical thinking, problem solving and innovation within the education system.

The programme's intent aligns with one of the Government of Trinidad and Tobago's pillars from its framework for sustainable development: 'to attain sustainable integral development and a more diversified, knowledge-intensive economy, built on the native genius of our people'.

Contrary to this aspiration, several companies within the Energy, Industrial and Manufacturing sectors struggle to recruit candidates with a strong STEM background. Results from the Caribbean Secondary Examinations Certificate (CSEC) indicate that out of the 18,000 students writing Mathematics, 55% are passing, with 22% obtaining grade 1's. The rates for Natural Sciences stand at 70% passing, with an average of 20% obtaining grade 1's. The results have implications for the talent pipeline of the energy and other sectors and have influenced Shell's investment in a national STEM programme.

Sustainability of this initiative depends on the knowledge, skills and expertise of teachers, as teachers appropriately trained in STEM education can contribute not only to the improvement in the overall performance of students in Mathematics, Science, Information Technology and Technical subject areas but to the inculcation of problem solving and critical thinking skills. So while a major component of the STEM programme implements interventions designed for students, emphasis is placed on developing appropriate teacher training methodologies to build and sustain the 21st century skills of students.

The programme has four (4) elements:

- Student Support Programme: inclusive of academic and technical training programmes and bursaries for students within Shell's fenceline communities
- Teacher Training Programme
- Secondary School Lab Upgrades
- Science Competition/Fair

THE STUDENT SUPPORT PROGRAMME

The Academic Programme

This programme targets forms one to three students from three(3) main educational districts, Port of Spain and Environs, Victoria and the South Eastern Educational Districts.

Each school meets twice each month on alternating Saturdays at STEM designated locations during each term from 9:00am to 1:00pm.

Partners (individual experts and organizations) commit to a year/term at the programme.

Content is executed through:

- Interactive presentations
- Hands-on activities
- STEM challenges whereby students design and create models to address specific problems
- Field trips that expose students to STEM careers, and national sites

The Technical Training Programme

This programme targets form four males in the Port of Spain and Environs Educational District and both male and female students in Victoria and South Eastern Educational Districts.

The Training Institutions comprise:

- MIC Institute of Technology
- National Energy Skills Centre (NESC)
- Automation Training College (ATC)
- KENSON School of Production Technology

The main objectives of the Technical Training Programme are:

To stir interest in practical courses for students in the Technical/Vocational trades and to improve student performance in technical/vocational subjects.

These courses can be a combination of the following but are not limited to:

- General Safety
- Life Skills and Communication
- Computer Usage
- Applied Engineering/Science/Maths
- Blue Print Reading and AutoCAD
- Electrical Technology
- Industrial Maintenance
- General Auto and Diesel
- Air Conditioning
- Fluid Power and Controls
- Basic Electronics
- Electrical Instillation
- Welding



TEACHER TRAINING PROGRAMME

Designed to strengthen competencies and methods of delivery, the programme challenges teachers to transform their attitudes and approach to STEM education. Teachers benefit from international pedagogical best practice that helps them to produce teaching and learning environments that integrate self-directed inquiry and case study learning experiences.

Programme Objectives

- To enhance skills, knowledge and strategies of teachers involved in STEM education.
- To expose teachers to the knowledge, skills, resources and support needed to improve the classroom experience for themselves and their students through STEM education.
- To create a learning environment that would motivate students to engage in Mathematics and Science curricula area.

Target Group

- Secondary school teachers



SCIENCE COMPETITION/FAIR

The programme incorporates a Science Fair that provides a platform for students to display their creativity, problem solving and leadership skills. In the Fair, students engage in rigorous research to design and develop projects that address community and societal challenges.

The objectives of the Science Competition/Fair are as follows:

1. To provide an opportunity for students to present and display their STEM projects.
2. To promote STEM careers.
3. To provide an opportunity for parents, teachers, school principals to witness the students' work.
4. To provide a platform for information exchange and the sharing of ideas around STEM education.

SECONDARY SCHOOL LABORATORY UPGRADES

Five laboratories were upgraded in three (3) schools. The intention is to enhance the learning experience for students pursuing Science subjects. These laboratories are also used for the STEM Academic programme on Saturdays. The upgrades included but were not limited to, installation of fume cupboards, dilution chambers, ceiling, students' counters, teacher's workstation and other civil works.



FAQS



When did the programme start?

The programme commenced in 2014 with Saturday workshops for students in an existing Bursary programme in 2 of Shell's fenceline communities [for the Top SEA performers from Central Block (St. Mary's Village, Moruga and environs) and the North Coast Marine Area (NCMA: Maracas to Blanchisseuse)] who receive Shell bursaries. Subsequent to this phase, the programme expanded to the fenceline communities of the East Coast Marine Area (ECMA) and incorporated schools from the Port of Spain and Victoria districts.

Which schools is the programme currently offered in?

Victoria Education District:

San Fernando Central Secondary | Debe Secondary | St. Benedict's College | Gasparillo Secondary | San Fernando East Secondary | San Fernando West Secondary | Pleasantville Secondary | Moruga Secondary | Marabella North Secondary | Marabella South Secondary

Port of Spain and Environs Education District:

Trinity College at Moka | Mucurapo East Secondary | Woodbrook Secondary | Belmont Boys Secondary | Tranquillity Secondary | Queen's Royal College | St. Anthony's College

South Eastern Education District:

Cowen Hamilton Secondary | St. Stephen's College

How does the programme work?

In partnership with experts and professional organizations, the STEM programme conducts workshops on Saturdays throughout the school term with forms one to three students in the participating schools. Bursary students from Shell's fenceline communities attend one-week camps during the Easter and July/August vacation periods.



FAQS

What is done at the Saturday workshop sessions?

Saturday is a remarkable day in the life of a child, typically filled with freedom, exploration and cartoons. Saturdays are even more remarkable for a STEM student, where freedom, exploration and even cartoons are not separate, but become a part of learning. From interactive presentations to field-trips, the Saturday programme expands the realm of STEM based learning beyond the norm.

What is done in the Academic Programme?

The academic programme covers a range of topics and areas under the STEM umbrella including but not limited to coding, seismic education, physical sciences, aviation, mathematics, critical thinking activities and STEM challenges. On alternating Saturdays forms one to three students from the North and South participating schools become immersed in the academic programme through hands-on activities, field trips and interactive lessons facilitated by organizations and experts in the field of STEM.



What is done in the Technical Training sessions?

The STEM programme also engages form 4 students who have an interest in technical careers. The objective of the programme is to expose students to the practical application of the subjects that they were pursuing in school. These programmes are facilitated by four technical training institutions that have expertise and a reputation in the area: MIC Institute of Technology, Automation Technology College (ATC) and the KENSON School of Production Technology and more recently the National Energy Skills Centre (NESC).

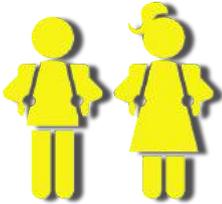
What happens to students after the programme?

During forms 1-4, the STEM programme cultivates a heightened understanding and interest in STEM-related subjects and careers. Based on this foundation, students are better equipped and more confident to choose subjects to pursue in upper secondary school levels and tertiary levels towards a STEM related career.

The programme provides additional financial and technical resources to the bursary students as they pursue STEM disciplines at a tertiary level.

STEM

AT A GLANCE



6300

STUDENTS IMPACTED

10



STEM CENTRES

AREAS COVERED



ROBOTICS
PROGRAMMING
MATHEMATICS
AVIATION
BIOLOGY
CHEMISTRY
3D PRINTING
CREATIVE & CRITICAL
THINKING
PROFESSIONALS IN STEM
AGRICULTURE + TECHNOLOGY
SEISMIC RESEARCH
CIVIL ENGINEERING
LIFE SKILLS
PETROLEUM ENGINEERING
GEOSPATIAL TECHNOLOGY

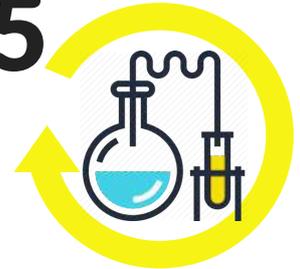
PARTNERS



- Faculty of Engineering, UWI
- UTT
- NIHERST
- Avatar
- Microsoft-CARIRI
- Why Farm
- The GIS Society of T&T
- DriveWise
- Tech4Agri
- American Association of Petroleum Geologists Trinidad and Tobago Chapter (AAPG)
- STEM teachers and professionals

LAB
UPGRADES

5



40



FIELD TRIPS

50

CAMP DAYS

BENEFITS OF THE PROGRAMME

STUDENTS
BECOME

PROBLEM
SOLVERS

CRITICAL
THINKERS

WORKFORCE
READY

COLLABORATORS

INNOVATORS