



Teach ME
National Students’
Innovation Competition
2024

OFFICIAL GUIDELINES

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INNOVATION COMPETITION

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EXECUTIVE SUMMARY

NIHERST, a state agency currently under the Ministry of Education, was established in 1984 to promote science, technology and higher education in Trinidad and Tobago consistent with national development goals. In 2014, NIHERST entered a participatory initiative with the Scientific Research Council (SRC) in Jamaica, entitled "Improving Innovation Capacities in the Caribbean" (INVOCAB). INVOCAB set out to promote and enhance Science, Technology, and Innovation at the primary and secondary school levels. Upon executing the project, a decision was taken to extend the project's reach to include a programme that will focus specifically on Mathematics at the primary school level. As a result, *Teach ME*¹ was introduced and implemented as a supported project from INVOCAB, with the overarching goal of improving students' performance in the Mathematics component of the SEA Examination.

The Teach ME project aims to contribute towards improving the levels of creativity in Trinidad and Tobago by building and strengthening capacities in the areas of Science, Technology, and Innovation and specifically Science Education as an enabler for ensuring that our education at primary and secondary levels prepares our young people for the challenging world of Science and Technology. The project was initiated in 2016 with two (2) primary schools on board. In 2017, five (5) primary schools participated in the project; in 2018 this number increased to eight (8) participating primary schools; and in 2019, the project further expanded to eleven (11) primary schools and the new addition of four (4) secondary schools² from the INVOCAB project. In 2021, the project continued to expand and welcomed two (2) additional primary schools.

One of the projects' main deliverables is developing and hosting a Students' Innovation Competition. This will be the 5th year that the competition is open to **all** primary and secondary school students of Trinidad and Tobago. The 2024 competition will focus on the theme: **"Building a Sustainable and Resilient Society"**. Primary and secondary school

¹ Teach ME: Increasing **Teachers'** Confidence for **My Education**

² Secondary schools were invited to participate in the Innovation Competition only. Prior to 2020, Teach ME specifically targeted the primary school curriculum.

students, with the assistance and supervision of a teacher or mentor, will embark on developing solutions to a particular problem in relation to the above theme.

INTRODUCTION

“We have the power to change the narrative. Let’s rewrite the story of our planet and ensure that it’s a tale of resilience, sustainability, and hope.”

- Jamie Margolin

The National Students' Innovation Competition aims to foster a culture of science, technology, innovation, and entrepreneurship. The competition seeks to recognise and reward student innovators and problem-solvers for their application of scientific knowledge and technological solutions in an effort to solve a problem faced by their community or school, and ultimately, to market and commercialise their idea or creation. Boosting the creative and innovative capacities of the youth of Trinidad and Tobago, in addition to fostering their entrepreneurial spirit is critical to the country's future competitiveness.

The Teach ME National Students' Innovation Competition encourages students:

- ❖ To identify and solve a school or community problem.
- ❖ To develop *Habits of Mind* and 21st Century Skills such as critical thinking and problem solving, creativity and innovation, perseverance and adaptability.
- ❖ To develop their ideas for commercialisation.

The Teach ME National Students' Innovation Competition is hosted on the virtual platform **Roblox**. Roblox is an online game platform and game creation system that allows users to design and build their own games as well as play games created by other users. This competition will expose participants to coding, game development and game design, skills that they will use to build a virtual community in which they would solve a problem related to the overarching theme **Building a Sustainable and Resilient Society**. Additionally, students will develop and improve *Habits of Mind*, a set of problem solving, life related skills, necessary to effectively operate in society and promote strategic reasoning, insightfulness, perseverance, critical thinking, creativity, and ingenuity.

Potential entrants to the National Students' Innovation Competition should give consideration to the following questions when conceptualising ideas and designing their virtual prototype:

- ❖ Does your idea or design solve a problem?
- ❖ What are the benefits of your innovation/invention to society, environment etc.?
- ❖ How easy can your idea be implemented in your community?
- ❖ Have you done research to ensure the novelty of your idea?
- ❖ Can your creation be marketed and earn profits?

Students are required to develop their idea to deliver a virtual business pitch of their simulated prototype to the Government of Trinidad and Tobago or prospective investors.

ELIGIBILITY

1. All entrants must be nationals of Trinidad and Tobago between the ages of 8 – 17.
2. Individuals or teams of up to five (5) persons can enter the competition.
3. Judging and prize giving will be divided into the following categories:

Juniors

Ages: 8 – 10

Seniors

Ages: 11 – 17

4. Multiple entries are allowed and should be done on separate entry forms.
5. Members of the organizing committee and their families are not eligible to enter this competition.
6. Entrants must sign the relevant agreement forms to be considered for judging.

PROTOTYPE SUBMISSION

Submission Guidelines

An independent panel of distinguished professionals will be appointed to evaluate all entries.

Stage 1:

- i. Complete and submit all team registration forms **no later** than **September 13, 2024**.
- ii. Complete and submit **Prototype Proposal Document** **no later** than **September 13, 2024** in order to be submitted for the first review by the judges. Remember, students can submit multiple entries; however, a team can only hold a maximum of five (5) students. The Proposal Document must include a brief description of the problem to be addressed and the solution that the virtual prototype will provide.
- iii. Teams must complete a **Project Design Packet** to document their journey throughout the competition (one design packet per team). Design packets should detail the project concept, design process and development, trials and error, and any other records. Design packets must include weekly progress notes and can be supplemented with pictures or videos. Students are encouraged to be as creative as possible.
- iv. Reviewers will conduct an initial assessment of the prototype proposals and will offer recommendations. All teams will receive feedback from the judges' first review by **September 20, 2024**. After which, teams can edit and further develop their ideas in order to begin building their virtual prototype.

Stage 2 (Round 1 of Judging):

- i. All entrants must submit a **Draft Design of the Virtual Prototype** (e.g. a picture, sketch, small model) or a **Video of a Run-Through³**, along with the **Prototype Proposal no later than **October 21, 2024****. The judges will assess these draft designs based on the following criteria: -
 - **originality (40%)**
 - **functionality (40%)**
 - **ingenuity (15%)**
 - **sustainability (5%)**
- ii. Judges will provide further comments and recommendations. After which, teams can then proceed to make any necessary changes to develop their final prototype.

Stage 3 (Round 2 of Judging):

- i. Teams must submit their **Final Prototype Proposal no later than **November 21, 2024**** via email prior to the final judging date.
- ii. On the final judging date, teams must deliver a **short presentation*** on their virtual prototype (see page 12 for further guidance), along with their **final Project Design Packets**.
- iii. Please note that the final judging will be held via Zoom on **November 30, 2024**. Any changes to date or video communications platform will be communicated.
- iv. Prize giving ceremony details will be announced following the selection of competition winners.

**Presentations can be done in any creative manner preferred by the entrant.*

³ The activity of performing or playing something from beginning to end in order to practise it.

Judging Criteria

Prototypes will be judged on the following criteria:

- **Originality (15%)**
- **Functionality (15%)**
- **Ingenuity (10%)**
- **Sustainability (10%)**
- **Methodology (10%)**
- **Creativity (5%)**
- **Usefulness (10%)**
- **Presentation (10%)**
- **Simplicity (5%)**
- **Commercial Potential (10%)**

Definitions

A brief definition of each criterion is given below:

Functionality:

- Is defined by the capacity of the innovation/invention to serve the proposed purpose well.

Sustainability:

- Is defined by the capacity for the innovation/invention to be maintained for a considerable period of time (including and not limited to long-term market/economic potential as well as ecological sustenance, i.e., not exhausting natural resources or causing ecological damage).

Methodology:

- Is defined as the system of methods and principles employed in the development of the idea or innovation.

Originality (of the idea):

- Is defined by the innovation/invention being new in character or design (must demonstrate appreciable novelty).

Creativity (of the idea's development):

- Is defined by the level of imagination that the invention/innovation displays.

Usefulness:

- Is defined by the benefits to society (social, ecological, socio-cultural or economic).

Ingenuity:

- Is defined by the skill utilised in devising or contriving the invention/innovation.

Simplicity:

- Is defined by the uncomplicated mechanisms used; the ease with which materials can be acquired and the steps involved in the manufacturing or process of development.

Commercial Potential

- Is defined by the prospect of sales and profit on a large enough scale to make the risk generated from the invention/innovation worth undertaking. It involves undertaking market research to identify the markets, the market need, and the market competition.

The judges' deliberations, including their evaluations, and reports shall be kept confidential at all stages of the competition and their decisions are final.

Theme and Presentation

Welcome Young Innovators!

Building a Sustainable and Resilient Society

In 2015, the UN General Assembly launched the 2030 Agenda, focusing on developing “futuristic societies” worldwide. These societies are envisioned to be sustainable and resilient, aligning with the 2030 Sustainable Development Goals (SDGs). These goals are a universal call to action to end poverty, protect the planet, and improve lives globally. Amid evolving global challenges, the integration of Science, Technology, and Innovation (STI) has emerged as a powerful force in building such societies. As the world grapples with environmental issues and a growing population, while preparing for unforeseen events, the role of STI becomes crucial. This convergence acts as a catalyst for creating a society that is both ecologically responsible and resilient to emerging threats.

The Role of Science

Science is crucial for understanding and predicting societal challenges. It provides critical insights into the complex workings of our environment and social systems. Through rigorous scientific research, we gain a comprehensive understanding of the relationships between human activities, ecosystems, and the climate. This knowledge enables us to make informed, evidence-based decisions, shaping policies and practices that promote sustainability and resilience.

For instance, climate science informs policies aimed at reducing carbon emissions, preserving biodiversity, addressing ecosystem degradation, and ensuring planetary sustainability. Meteorological science, a sub-field of climate science, helps predict and prepare for extreme weather events. Robust scientific methodologies contribute to the development of sustainable technologies and policies, fostering a harmonious coexistence between humanity and the planet.

The Impact of Technology

Technology, with its rapid advancements, significantly enhances society's capacity to withstand and recover from shocks. Innovations such as early warning systems and monitoring tools empower societies to anticipate and mitigate disaster impacts. Advances in communication technologies facilitate rapid response and coordination during emergencies, ensuring critical information swiftly reaches affected populations.

The deployment of smart infrastructure, including resilient buildings and efficient transportation systems, contributes to community resilience. Technological innovations also play a pivotal role in developing alternative and renewable energy sources, optimizing resource utilization, and minimizing environmental footprints. For example, advancements in clean energy technologies like solar and wind power support the transition from fossil fuels to sustainable energy, reducing greenhouse gas emissions. Moreover, technology facilitates sustainable agriculture practices, water conservation, and waste management, laying the foundation for a more sustainable and resilient society.

The Power of Innovation

Innovation drives the development of new tools and approaches across various sectors, including healthcare, agriculture, and disaster management. It involves creatively applying knowledge to address societal challenges, resulting in breakthroughs in green technologies⁴, circular economy models⁵, and sustainable materials⁶. Fostering a culture of innovation encourages adaptive thinking and responsiveness to unforeseen challenges, ensuring long-term societal resilience.

For instance, using artificial intelligence to predict disease outbreaks enables early containment measures, while innovative agricultural practices enhance food security amid climate change. The ability to adapt and innovate ensures societies remain agile and responsive to evolving challenges. Furthermore, innovation fosters inclusivity by developing solutions accessible and beneficial to diverse communities. Collaborative efforts between

⁴ Environmentally friendly technology based on its production process

⁵ A model of production and consumption that minimizes the use of finite resources and waste generation

⁶ Materials that do not strain the environment during production, use or disposal

governments, businesses, and academia can spur innovation ecosystems, creating fertile ground for sustainable solutions.

Integrating Science, Technology, and Innovation

Sustainability and resilience are interconnected facets of societal development, requiring a holistic approach. The synergy between science, technology, and innovation ensures solutions address multiple dimensions of challenges. For example, leveraging satellite technology for real-time environmental monitoring aids in sustainable resource management and provides critical data for disaster preparedness and response, exemplifying the interconnectedness of STIs in building a resilient and sustainable society.

Building such a society also requires a paradigm shift in societal attitudes and practices. Education plays a pivotal role in fostering a culture that values sustainable living and embraces innovative solutions. Collaboration among governments, industries, academia, and civil society is essential to harness collective intelligence and resources for impactful change. Initiatives promoting interdisciplinary research, knowledge exchange, and public engagement enhance the integration of STIs into societal transformation efforts.

The integration of STIs is vital for countries to attain the 2030 SDGs and build sustainable and resilient societies. All entries to the Teach ME National Students' Innovation Competition will be broadly classified under the theme “*Building a Sustainable and Resilient Society*”. Participating students, with the guidance of their teachers or mentors, will embark on projects following the guidelines to create solutions addressing specific problems related to this theme.

Building Your Virtual Prototype

Students must use the designated game building software *Roblox Studio* to design their virtual prototypes.

1. Create Roblox user account www.roblox.com
2. Download and install Roblox Studio www.roblox.com/create
3. Collaborate using Team Create feature
4. Using Roblox, create a solution to a threat or problem in your community in relation to the theme **Building a Sustainable and Resilient Society**

Tutorials would be circulated via email to all participants as a guide to using the gaming platform.

Important Points to Note:

- Students must construct **60%** of their prototypes on their own versus using free models from the online database.
- Absolutely **no** downloading of free models of building structures e.g. houses, schools, hospitals, business offices, commercial centers etc. Students must construct buildings on their own.
- Downloading of free models from the online database is allowed for characters/avatars, cars, accessories, items used for aesthetics (trees) etc.
- Collaborate as a team. Must be a team effort.
- Students are not allowed to edit or delete another teammate's work without his/her permission.

Verbal Presentation of Prototypes

Teams must: -

- explain their innovation, clearly describing the community problem that their virtual prototypes were created to solve.
- describe how their virtual prototypes are intended to work.
- detail the use of coding in the development of their virtual prototype.
- include a brief plan or proposal to produce and sell their innovation to the government of Trinidad and Tobago or investors.

SUBMISSION OF ENTRIES

Competition forms must be submitted **on or before** the stipulated deadlines as follows:

You must e-mail your submissions to teachme@niherst.gov.tt **on or before** the stipulated deadline dates.

Your submission should be entitled “NIHERST Teach ME National Students’ Innovation Competition 2024”.

PRIZES

**Up to fifty thousand dollars (\$50,000)
in Gift of Units from the Unit Trust Corporation
to be won!**

Prizes for winners in the Junior and Senior categories will be awarded as follows:

- 1st place winners
- 2nd place winners
- 3rd place winners

Place	Junior Category	Senior Category
1st	Individual – \$2,500.00 Group – \$2,500.00 for each group member	Individual – \$2,500.00 Group – \$2,500.00 for each group member
2nd	Individual – \$1,500.00 Group – \$1,500.00 for each group member	Individual – \$1,500.00 Group – \$1,500.00 for each group member
3rd	Individual – \$1,150.00 Group – \$1,150.00 for each group member	Individual – \$1,150.00 Group – \$1,150.00 for each group member

Additional prizes may also be awarded at the discretion of the organisers. NIHERST and the organising committee reserve the right to refuse awarding of prizes where the required standards are not met and will not be liable to any entrant for the loss of opportunity, or under any other grounds.

Prizes will be distributed via the courtesies of NIHERST. Recipients must have an existing Unit Trust Corporation account, **only** TT\$ Money Market Funds or TT\$ Growth & Income Funds are accepted. The account may be in the name of the student, parent or guardian.