



## **BIEA 2020 International STEM Youth Innovation Competition**

**“SOS – Save Our Shores”  
STEM (Stop) the Tide of  
Plastic Pollution**



**FUN LEARNING &  
NEW EXPERIENCES**

Create a future we want to visit

# 1 THE COMPETITION

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The International STEM Youth Innovation Competition is an event for students aged 9–21, organised by the British International Education Association (BIEA). It aims **to raise the level of technological enthusiasm among students** from all over the world as well as **to stimulate students’ passion for science, technology, engineering and mathematics (STEM)**.

## 2018

The first event took place in 2018 and was only open to British students with the theme of creating a drone for a disaster rescue mission.

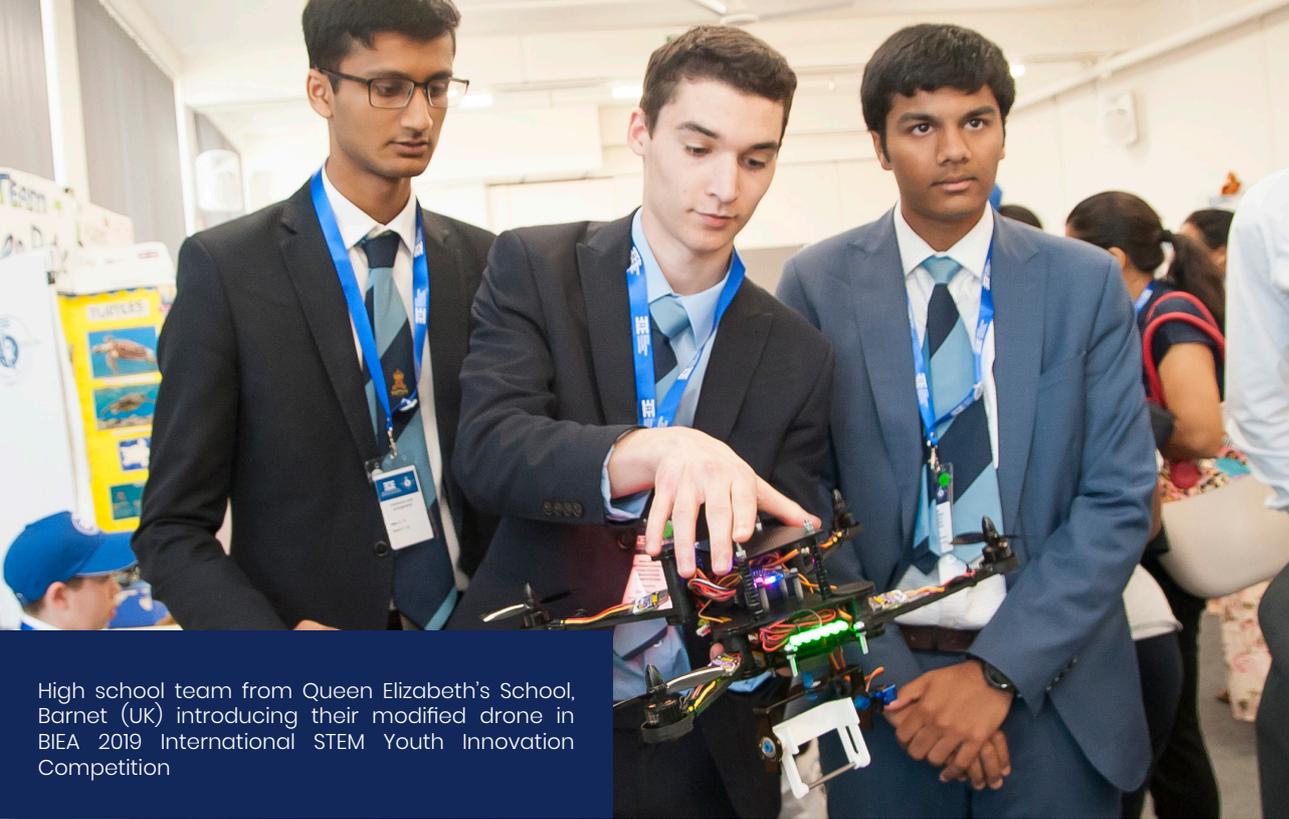
## 2019

2019 was the first international competition, with student teams from around the world taking part to design and develop drones in the battle to protect wild and endangered animals.

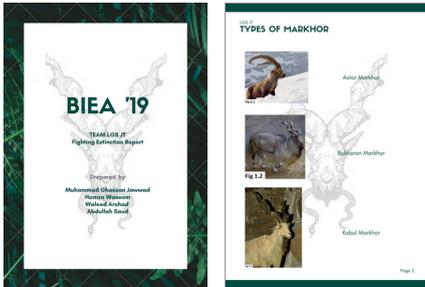
## 2020

The theme of this year’s competition is **“SOS: Save Our Shores”**. Plastic pollution has become one of the most pressing environmental issues, as rapidly increasing production of disposable plastic products overwhelms the world’s ability to deal with them. Teams will have to create a method of collecting plastic waste in inaccessible and dangerous areas between water and land.





High school team from Queen Elizabeth's School, Barnet (UK) introducing their modified drone in BIEA 2019 International STEM Youth Innovation Competition



"Fighting Markhor Extinction via Drone Technology" report submitted by the high school team from Lahore Grammar School (Pakistan) in 2019



A Team from Kent College Canterbury (UK) answering questions raised by the judges during the evaluation session in the Live International Final in 2019

A student from the Alpha Preparatory School (UK) and BIEA STEM Judge Louise Medland (Schools Programme Manager, BT)



# 2 COMPETITION OBJECTIVES AND BENEFITS

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## Competition objectives

- To inspire more young people to study STEM subjects and consider a career in these industries
- To communicate the benefits of STEM education to other nations worldwide
- To build bridges between science, technological innovation, education, and young people across a variety of industries
- To promote equal opportunities for all children, including those living in less economically developed countries

## Competition benefits

The competition offers several benefits to the young people who are participating. Such as:

Allowing participants to learn a range of new skills. As highlighted in the “Competition Structure” section, skills such as report writing, communication, teamwork, project evaluation and many more are learnt as part of the process.

It is important that young people are engaging in science, technology, engineering and mathematics so that they can be future thought leaders in these industries.

The competition supports the principle of equal opportunity, as applications are encouraged worldwide, and we have received applications from almost every continent.



**“The development of science and technology should focus on the comprehensive development and care of human beings and life in the wider environment, providing positive progress for the planet as a whole.”**

**- David Hanson, BIEA STEM Chairman**



# 3 2020 COMPETITION OVERVIEW

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The competition theme in 2020 reflects two major concepts: Technological innovation and the clearing of plastic waste: **“SOS: Save Our Shores - STEM (Stop) the Tide of Plastic Pollution”**.

Muddy banks of rivers and lakes, as well as the shorelines under steep cliffs, are treacherous places to clean up plastics. Beaches below cliffs can be cut off quickly by tides and soaked riverbanks can trap people deep in mud. Plastic clearing in these waterlines is very dangerous, but there is just as much plastic washed up on them as there is on tourist beaches.

Teams are challenged to apply technological innovations to clear plastic from riverbanks and beaches before it is transported deeper into the oceans.

# 4 COMPETITION STRUCTURE AND REQUIREMENTS

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The competition is organised around a new theme in science and innovation each year. The themes seek to reflect the most current global challenges. It challenges the following skills of the students: report writing, presentation, innovation, live final display, Q&A, mission execution and teamwork.

BIEA requires that all students must be in teams of between 3 and 5 individuals. Each school or club must be registered by a responsible adult (except for the 18-21 years old age group). Schools may enter more than one team per age category: 9-11 years old, 12-14 years old, 15-17 years old and 18-21 years old.

## Regional Heats

This section will consist of learning report writing skills: Competitors will use the Internet, books and media articles to research information and use this to design a device suitable for collecting plastic bottles and bags with little direct input from humans. Teams must submit their reports via email by 31st March 2020 5pm

## International Competition

This section will be based on innovation and design: working within a set budget from BIEA, competitors will make a model concept for their design. Teams are required to video the model operation and a presentation about the progress of their projects, according to requirements provided by BIEA.

## Live International Finals

This will be focused on executing the mission, evaluating project successes and challenges and displaying work to be judged.





Video presentation submitted by the students from Ravenswood School for Girls (Australia) on protecting Bengal Tigers in 2019



"Protecting Red Pandas" report submitted by Visakha Valley School (India) in 2019



Display session: Teams are required to visualise their ideas on display boards

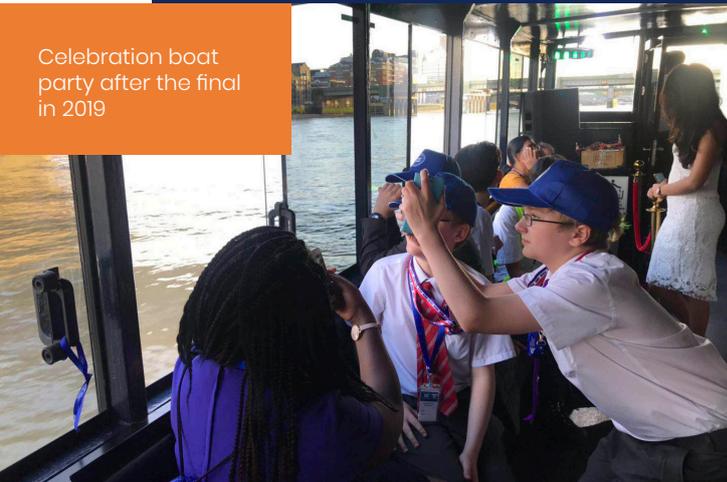
Technological Achievement Showcase held in London Westminster Kingsway College in 2019, students exchanged ideas with each other and STEM experts



Execution session: Teams are required to perform tasks on an obstacle course



Evaluation session: Teams are required to answer questions raised by the judges



Celebration boat party after the final in 2019



Winning team in the awards ceremony in 2019

# 5 IMPACT

## Theme in 2019: “Fighting Extinction via Drone Technology”



**1 million audience reached**  
(students, families, readers)



**30,000 schools**  
reached globally



**76%**  
UK school coverage



**34**  
countries and regions



**30%**  
female participants



**45 teams**  
qualified for the international stages



**13,000**  
public visitors

- Group judges who are STEM experts
- Strong support from embassies
- Born Free Foundation as the strategic partner
- Royal Air Force Museum as the venue partner
- DJI as equipment partner
- **Supporters:** Department of International Trade, British Council, British Science Association, Royal Institution, Engineering UK, China-Britain Business Council and many more
- **Industry Sponsors:** Microsoft, BT and others
- **Media support:** New Scientist, CGTN, CNBC Africa, China Daily, Computer Weekly etc.



# 6 AWARDS

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The winning team of the BIEA International STEM Youth Innovation Competition will win **£5,000**. Additionally, there are the following awards for each age group:

- Champion
- 1st Runner up
- 2nd Runner up
- Best Report Award
- Best Oral Presentation Award
- Best Pilot Award
- Best Creativity Award
- Best Effort Award
- Best Participation Award
- Best Instructor Award
- Best Display Award
- Best Display (Peers) award
- Outstanding Achievement Award

## The CREST awards

The CREST Awards Programme is a project developed by the British Science Association (BSA) for young people. It provides a flexible project framework to motivate and engage young people between the ages of 5 and 19 to participate in technological innovation activities. The award is recognised by UCAS (Universities and Colleges Admissions Service) in the UK and is useful for applicants who want to apply for a UK university.





Delegates from the Polish and Chinese embassies, High Commissions for Pakistan and Nigeria in London, supporting the BIEA 2019 International STEM Youth Innovation Competition

Contract signing ceremony with our strategic partner Born Free Foundation at the 2019 STEM Conference



Letter of encouragement from the UK Department of International Trade and the Embassy of Poland in London

2019 Competition launch at the STEM Conference marking the prelude of the 2019 competition journey



Panel discussion and presentation by STEM experts at the BIEA 2019 STEM Conference



# 7 COMMITTEE AND JUDGES

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## The leaders of today influence the leaders of tomorrow

BIEA has picked experts from across the STEM field to carefully evaluate every entry form beginning to end. There are many judges but here are a few of the key influencers.

### Part of the Judges (Might subject to change)

Prof. Richard Chandler, Head of Department in the Department of Statistical Science at University College London, Fellow of the Royal Statistical Society

Chris Coode, Deputy Chief and Head of Education and Training, Thames 21

Dr. Shaun Fitzgerald, Director, Royal Institution

Dr. Alex Holmes, Head of STEM, BIEA

Raul Quesada, Senior Research Associate, the Materials Chemistry Centre, UCL



# 8 STEM CONFERENCE

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The BIEA STEM Conference, which takes place annually in January, will feature speakers presenting on issues relating to the interplay between ecology and technology. It also aims to draw attention to the skills gap that is developing between the number of STEM graduates and the growing number of STEM jobs that are needed to sustain the economy.

Past conference brought together technology leaders and STEM education experts from the British Council, Royal Institution, Microsoft, British Science Association and many more. In 2020, the conference gathered academic experts from Imperial College London, Heriot Watt University and conservation charity Thames21, highlighting the impact of climate change on marine life, the latest plastic packaging technology and recycling process, as well as the plastic problem in our waterways.



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Get in Touch!

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Video Clips



BIEA 2019 International STEM Youth Innovation Competition



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