CANSAT MALTA

2025-2026

PARTICIPATION GUIDE

GOVERNMENT OF MALTA
MINISTRY FOR EDUCATION, SPORT, YOUTH, RESEARCH AND INNOVATION
PARLIAMENTARY SECRETARIAT FOR YOUTH, RESEARCH AND INNOVATION
XJENZA MALTA
esplora
CANSAT MALTA

"This competition is funded through Xjenza Malta, and Esplora will provide training and guidance to educators, equipping them to lead their teams through this exciting challenge whilst coordinating the project."

Coordinated by

XJENZA MALTA

Funded by

esplora

Acknowledgments to

GOVERNMENT OF MALTA

MINISTRY FOR EDUCATION, SPORT, YOUTH, RESEARCH AND INNOVATION

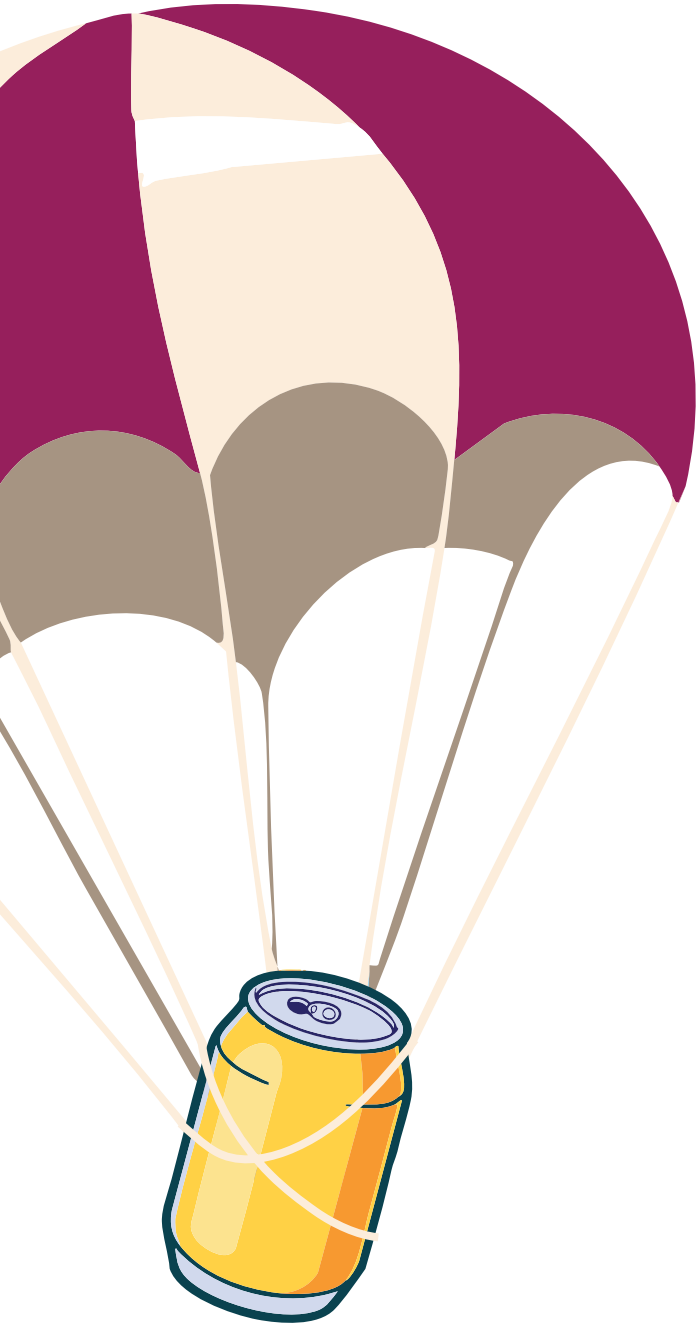
PARLIAMENTARY SECRETARIAT FOR YOUTH, RESEARCH AND INNOVATION

CONTENTS

1. Introduction
2. The Educational Value of the CanSat Malta Competition
3. What is CanSat Competition?
   - 3.1. Anatomy of a CanSat
     - 3.1.1 Flexibility in Design
   - 3.2. Eligibility for Participation
     - The Student Team
     - The Team Leader (educator)
   - 3.3. Primary and Secondary Mission
     - Primary Mission
     - Secondary Mission
4. Timeline
5. Competition Overview
   - 5.1. Phase 1: Call for Proposals and Team Selection
     - Application Form Submission
     - Teams Selection
   - 5.2. Phase 2: Training Sessions
   - 5.3. Phase 3: CanSat Construction and Test Activities
     - Pre – Launch Report (PLR)
     - Test Day
   - 5.4. Phase 4: Rocket Launch Campaign Programme
6. Evaluation and Scoring
   - 6.1. The Jury
   - 6.2. Scoring
     - 6.2.1. Technical Achievement
     - 6.2.2. Scientific Value
     - 6.2.3. Professional Competencies
     - 6.2.4. Outreach
   - 6.3. Marking Scheme
     - Penalties
7. CanSat Requirements
   - 7.1. Requirements and Constraints
   - 7.2. Meeting the Requirements for the Launch Campaign
8. Competition Financing
9. Notice to Team Leaders – Post Selection Process
10. Contact

Annex 1 – Guidance for educators/team leaders to fill the Application Form

Annex 2 – The Basic CanSat Kit



1. INTRODUCTION

In a continued effort to raise awareness on space applications and related sectors, Esplora Interactive Science Centre, and the Space Department of Xjenza Malta are organising the CanSat Malta Competition again after a five-year hiatus. This competition is part of an effort to bridge the gap between space applications and society. It aims to drive into Maltese classrooms the relevance of space-related data in better approaching challenges here on Earth.

The competition introduced in this document, entitled **CanSat Malta**, targets students between 14 and 18 years of age. This activity is an opportunity for students to come together and work as a team in designing and building a small-scale space related project. It enables students to strengthen STEM-associated skills in a practical and exciting way as they explore the significance of space applications.

This document serves as a guide to students and educators/team leaders that are interested in participating in the CanSat Malta 2025–2026 Competition.

2. THE EDUCATIONAL VALUE OF THE CANSAT MALTA COMPETITION

The participating teams will have the opportunity to experience the phases associated with a real space project such as: mission objectives and requirements selection, CanSat design, components, system testing, launch campaign and scientific data analyses. Apart from exposing the potential of satellite-related applications in better approaching Earthly challenges, throughout this competition the students will:

- learn by doing – through a practical design and development project,
- get acquainted with the enquiry-based methodology that is typical of real-life scientific and technical professions,
- acquire and/or reinforce fundamental Technology, Physics and programming curricular concepts,
- understand of the importance of project coordination, budget management and team work,
- enhance their communications skills.

Figure 1: Learning through experimentation and troubleshooting is of significant value.

3. WHAT IS CANSAT COMPETITION?

A CanSat is a simulation of a real satellite, integrated within the volume and shape of soft drink can (Figure 3). During the CanSat competition teams consisting of four to six secondary school students led by their educator/team leader are tasked to design and build a CanSat. The challenge for the student teams is to fit the major subsystems typically found in a satellite such as power, sensors and communication systems into this limited volume. The CanSat, which the teams would have designed to carry out particular 'missions' is then launched to an altitude using a rocket and transmits data as it descends under a parachute. The competition is subdivided into four phases as follows:

Phase 1: Call for Proposals and Team Selection. On opening of the call for proposals, interested teams are to submit an Application Form, providing an overview on the scientific mission (secondary mission) the team intends on doing if provided with a CanSat kit. Interested teams are to keep in mind the CanSat requirements provided in Section 7 when submitting a proposal. The teams behind the best Research Proposals will be provided with a free CanSat Kit and admitted to the competition.

Phase 2: Training Sessions. Educators/Team leaders and the students of the selected teams will be invited to two Training Sessions organised in Malta and delivered by an expert with experience in CanSat competitions. In these training sessions, the educators/Team leaders and the students are guided on how to assemble the basic components of the CanSat and on transversal skills like organisation, leadership, budgeting and reporting.

Phase 3: CanSat Construction and Test Activities. The teams, under the guidance of the leader, will design and construct a CanSat that carries out a compulsory primary mission and the secondary mission they had defined in the *Application Form*. All teams are to abide by the CanSat requirements provided in Section 7. At the end of this phase teams will have the opportunity to trial CanSat functionality in a test day organised before the actual launch campaign.

Phase 4: Competition Launch Campaign and Post-Flight Activities. The completed CanSats will be launched using a rocket. When at altitude, the CanSats separate from the rocket and descend under individual parachutes, transmitting data associated with the planned scientific missions. The teams will have the opportunity to collect, process and analyse the data obtained from the CanSat.

3.1 ANATOMY OF A CANSAT

At the core of every CanSat project is a programmable electronics platform. The CanSat Starter Kit, provided free of charge to all participating teams, is Arduino-based. However, teams are free to use other platforms if they prefer. Options such as the ESP32, Raspberry Pi Pico, or similar platforms are equally valid choices. Figure 3 illustrates the concept using an Arduino, but this is only one of many possible solutions. The Arduino platform, included in the starter kit, is widely used in education and hobbyist projects thanks to its open-source nature, ease of programming (typically using C/C++), and the abundance of online learning resources.

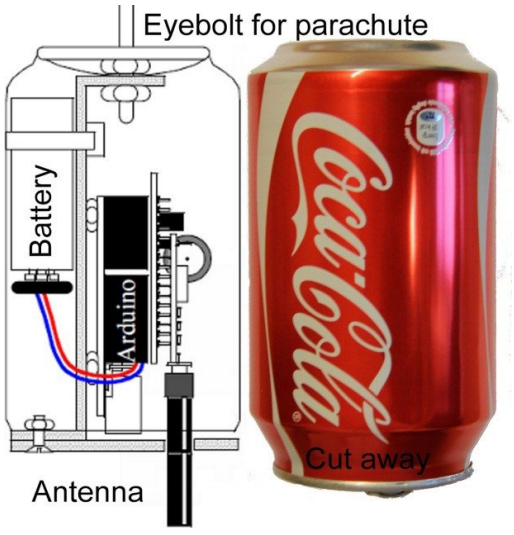


Figure 3: CanSat simple diagram

A wide range of sensors (input devices) and actuators (output devices) can be connected to these platforms. Sensors translate physical measurements into electronic signals that the board can process, while actuators convert those signals into movement or other forms of interaction with the environment. This flexibility allows teams to design their CanSat to collect and transmit data in creative and practical ways.

The CanSat must fit within maximum dimensions of 115 mm in height and 66 mm in diameter. Although Figure 3 shows a standard drinks can, teams are not limited to using one. You may use an actual drinks can, 3D print a custom shell or construct another form that fits within the defined size.

The CanSat handbook, prepared by the European Space Education Resource Office (ESERO) in the Netherlands, is provided as a comprehensive reference guide. It contains detailed explanations of the kit components and step-by-step information to help educators, team leaders, and students get started, even without prior experience.

3.1.1 FLEXIBILITY IN DESIGN

While the Arduino R3 is part of the starter kit, there is no requirement for the teams to use only this board. You can use other microcontrollers if they are more appropriate to your project idea, such as:

- ESP32
- Raspberry Pi Pico
- Other compatible platforms

The important point is that your chosen system must be able to fit inside the CanSat and perform the mission that you design.

Physical Structure

The CanSat must respect the following maximum size dimensions:

- Height: 115 mm
- Diameter: 66 mm

If your CanSat conforms to these dimensions, you can design it in different ways:

- Use a standard soda can
- 3D print a custom structure
- Build a cuboid or other shape within the allowed size

3.2 ELIGIBILITY FOR PARTICIPATION

The Student Team

The competition is open to all secondary and post-secondary school students based in Malta. Eligible teams shall be composed as follows:

- A team shall involve a minimum of 4 up to a maximum of 6 full-time secondary or post-secondary school students aged between 14 and 18 years. A minimum of 4 students per team is required in order to guarantee proper team interaction and collaboration.
- The team shall be led by an educator/team leader ideally teaching subjects in technology, physics and programming curricular subjects as will be mentioned in the forthcoming section.
- University (Level 6) or higher-education level (Level 5) students are not eligible to participate in this competition.
- A school, a coding club or any other after-school groups can apply under this competition. Each school or any other after-school groups can have more than one team however each Team Leader must lead a maximum of 1 team.
- The same team shall not be eligible to submit more than one proposal.

The Team Leader (educator)

Each team must have a *Team Leader* (educator) responsible for submitting the *Application Form* by the deadline specified in *Section 4* and for monitoring the team's technical and general progress that must be available to offer help and advice.

Considering the nature of the competition, the *Team Leader* is to preferably be to proficient in technical subjects such as Computing, Physics, Design and Technology, Engineering Technology and Information Technology, amongst others. Although this is not a requirement, a that has the right background helps ensure the student team receives appropriate guidance throughout the competition.

The *Team Leader* shall act as the point of contact between Esplora and the participating teams. The educator assuming the role of the team leader must be available to accompany the team during following activities, which are detailed in the forthcoming sections:

- Two Training Sessions in Malta delivered by an expert with experience in CanSat competitions
- CanSat test day;
- Rocket Launch event;
- Space Engineer for a Day event if the team wins the National competition.

Note that the same educator/team leader shall not represent more than one team under the CanSat Malta Competition 2025–2026.

3.3 PRIMARY AND SECONDARY MISSION

Primary Mission

All CanSat teams admitted to the CanSat Malta Competition shall accomplish the following compulsory primary mission. Following rocket separation and during descent, the CanSat must measure the following parameters and transmit them as telemetry to the ground station at least once every second:

- Air temperature,
- Air pressure,

This data must be collected in a way that enables the team to analyse it, make an altitude calculation and display it on graphs (for example, altitude against time and temperature against altitude). This exercise shall be done in a post-flight analysis.

Secondary Mission

In contrast with the Primary Mission, the secondary CanSat mission must be selected by the team and is the mission proposed in the Application Form. The secondary mission can be inspired by real satellite missions, a perceived need for scientific data for a specific project, a technology demonstration for a student-designed component, or any other mission that would fit the CanSat's capabilities.

While some examples of possible missions are listed below, teams are free to design a mission of their choice provided they can demonstrate it has some scientific, technological or innovative value. It is also important that the proposed mission satisfies the CanSat requirements provided in Section 7. Teams should also keep in mind the limitations of the CanSat mission profile, and focus on the feasibility (both technical and administrative) of their chosen mission. Some secondary mission examples are listed hereunder:

Advanced Telemetry: Following release and during descent, the CanSat measures and transmits additional telemetry to that required for the primary mission, for example: acceleration, GPS Location or radiation levels.

Telecommand: During descent, commands are sent from the ground to the CanSat to perform an action, such as switching a sensor on and off, changing the frequency of measurements, etc.

Targeted Landing: The CanSat navigates autonomously with a control mechanism such as a parafoil. The objective is for the CanSat to land as close as possible to a fixed target point on the ground after it has been released from the rocket. This mission is an advanced telemetry/ telecommand mission – navigation data is exchanged between the CanSat and a ground station throughout the descent.

Landing System: For this mission, an alternative safe landing system for the CanSat would be deployed, such as a bespoke parachute or airbag.

Planetary Probe: A CanSat can simulate an exploration flight to a new planet, taking measurements on the ground after landing. Teams should define their exploration mission and identify the parameters necessary to accomplish it (e.g. pressure, temperature, samples of the terrain, humidity, etc...

4. TIMELINE

The CanSat Malta Competition 2025–2026 consists of four phases as mentioned previously. The associated timeline is shown below. While the dates associated with Phase 1 are confirmed, the timeline associated with the other phases is only indicative.

Confirmed dates associated with the rest of the timeline will be published on the Esplora CanSat webpage and will be communicated with all competition participants by the first Training Session. Nevertheless, the applying educators/team leaders with their team shall make themselves available to the indicative dates mentioned below.

Phase 1: Call for Proposals and Team Selection	
Activity	Dates
Call opens	15 October 2025
Deadline for Application Form	Friday 28th November 2025
Announcement of selected teams	5th December 2025

Phase 2: Training Sessions*	
Activity	**Dates**
Training Session	Between 15 and 17 December 2025
Training Session	Between 16 and 18 February 2026

Phase 3: CanSat Construction and Test Activities**	
Activity	Dates
CanSat Construction and Related Reporting	December 2025– March/April 2026
CanSat Test Activities	

Phase 4: Competition Launch Campaign and Post-Flight Activities**	
Activity	**Dates**
Pre-Launch Activities Rocket Launch Event Post Flight and Final paper reporting Award Ceremony	March 2026 – May 2026

*Exact dates will be communicated in due course.

** Dates are expected to be published by the first Training Session.

COMPETITION OVERVIEW

5.1 PHASE 1: CALL FOR PROPOSALS AND TEAM SELECTION

Application Form Submission

To participate in the CanSat Malta Competition 2025–2026, the team is to complete the online *Application Form* . This form, provides details on the student team, the educator assuming the role of the team leader and the secondary mission the team intends on doing if provided with a CanSat kit. Interested teams are to keep in mind the CanSat requirements listed in Section 7 when submitting a proposal. The *Application Form* should be concise and must include aspects analogous to the typical lifecycle of a real space project. A sample application form is shown in Annex 1.

The completed *Application Form* shall be submitted no later than Friday **28th November 2025**.

Teams Selection

On call closure, submitted *Application Forms* will be assessed by evaluators appointed by Esplora and ranked according to the quality and technical feasibility of the proposed missions. The teams behind the best proposals, which will be announced at the end of November 2025, shall be admitted to *CanSat Malta Competition* and provided with a free CanSat kit (refer to Annex 2).

5.2 PHASE 2: TRAINING SESSIONS

The selected teams with their educators/team leaders will be invited to two Training Sessions with a duration of one day each organised in Malta and delivered by an expert with experience in CanSat competitions. During these two one-day training sessions, teams will be provided with technical handbooks and introduced to the CanSat kits through practical exercises

associated with the Arduino/Raspberry pi microcontroller, ground station communications, amongst others .

The training sessions are tentatively planned for mid-December 2025 (between 14 and 17 December) and mid-February 2026 (between 16 and 18 February). Additional details, including dates and course content shall be communicated there and then.

5.3 PHASE 3: CANSAT CONSTRUCTION AND TEST ACTIVITIES

As team leaders, the educators shall guide their respective teams in designing and developing a CanSat that carries out the compulsory Primary mission and the Secondary mission outlined in the *Application Form*. The technical design and development work includes aspects that are analogous to the typical design lifecycle of a real space project, which are:

- Selection of mission objectives;
- Definition of technical requirements necessary to achieve mission objectives;
- Design of CanSat hardware and software;
- Design of ground station/ ground telecommunication system;
- Submission of a **Pre-Launch Report** of a maximum 15 pages to Esplora by the deadline to be specified in due course;
- Integration and testing of the CanSat with the necessary test data analysis;
- Launch campaign preparations and related operations

Pre – Launch Report (PLR)

All selected teams are to submit the Pre-launch report before the actual rocket launch. The Pre-Launch report, or PLR, is a **15 page document** (excluding appendices) that summarises all the work done (progress), providing a full description of the CanSat mission, system and functionalities, and indicating the steps, rationale and trouble-shooting which was needed to achieve the CanSat refined design, as well as a detailed budget costing table. This document should accurately record all the details of the completed CanSat prototype. This will be the main document provided to the Jury members before the launch campaign, who will then be tasked with evaluating the work and performance of each team as detailed in Section 6.

The Pre-Launch Report must be submitted to Esplora **(written in Verdana font, size 11)** at stemengagement.esplora@gov.mt with the name of the team written in the email subject line (e.g. "Team_Name_PLR"). The document attached should be in a .pdf format, with the following file name format: Team_Name_ PLR.pdf

Additional details, such as submission deadlines and the respective template will be published on the Esplora CanSat webpage and communicated to all participants in due course. The template, which shall serve as a guide to completing the respective sections, will be published on the Esplora CanSat webpage and communicated to all participants.

Submission details are as follows:

Email To	stemengagement.esplora@gov.mt
Email Subject	*Team_Name*_PLR
Report Format	The reports should be submitted as an attachment in .pdf format. Name of attached shall be identical to the email subject.

Test Day

At the end of Phase 3, all teams will have the opportunity to test their CanSat during a trial day organised before the actual launch. During this trial, which is considered as an important milestone in the design process, the CanSat will be dropped from several metres above ground. This test is not meant to simulate the acceleration and flight profile in the actual rocket launch; however it enables the teams to take preliminary readings and test the functionality of their design. Following the test, the teams are allowed to make some final design and construction changes as long as the purpose of the mission remains unchanged. The teams will not be assessed on test results.

Figure 5: Preparing for the CanSat drop test

Figure 6: Checking the CanSat according to regulations

5.4 PHASE 4: ROCKET LAUNCH CAMPAIGN PROGRAMME

The final phase, often considered as the highlight of the competition, is the launch campaign. As depicted in Figure 8, the fully functional CanSats will be launched to an altitude of a few hundreds of meters in a rocket. When at altitude, the CanSats separate from the rocket and descend under individual parachutes. Each mission begins here: the CanSats collect and transmit data associated with the primary and secondary missions. The transmitted data is received by the student teams via an antenna interfaced to a laptop as shown in Figure 9. Following the launch event, all teams will have the opportunity to analyse the data received during the launch event.

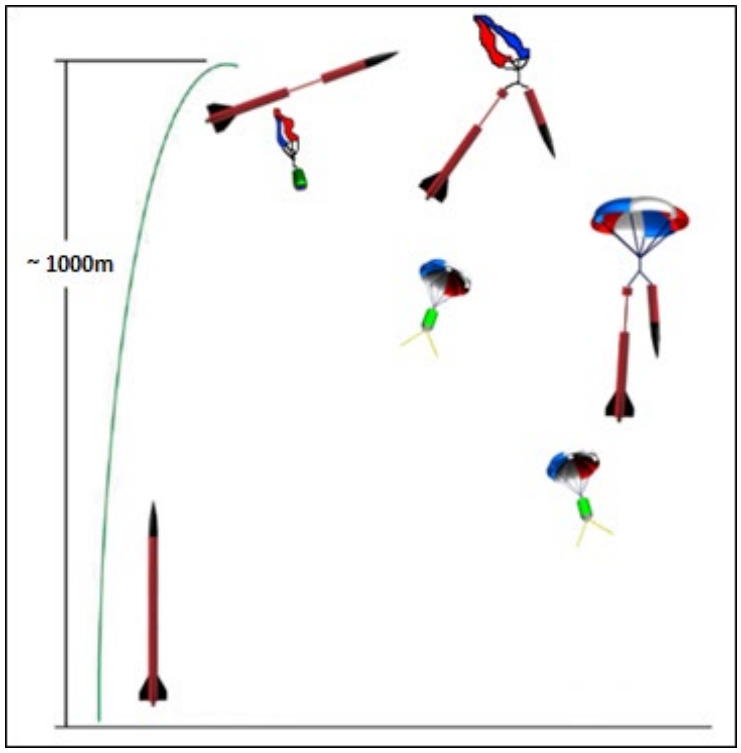


Figure 7: Rocket Launch Schematic [3]

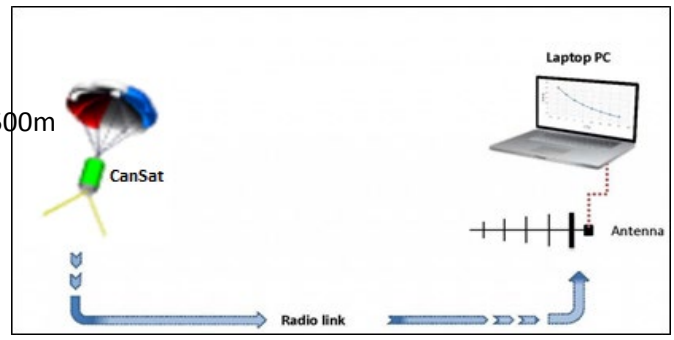


Figure 8: Capturing data from the CanSat via an antenna [4]

A TYPICAL PROGRAMME FOR A LAUNCH EVENT IS AS FOLLOWS:

DAY 1 – PRELAUNCH ACTIVITIES

- Opening ceremony;
- Team's presentation of their overall CanSat design and satellite mission in front of the jury. The presentation shall be a summarized version of the PLR report however any additional information found after submission of the PLR report are allowed to be presented;
- Final integration and technical inspection of the CanSats;
- Mission overview session to all teams before the Rocket Launch Eventl;

DAY 2 – ROCKET LAUNCH EVENT

- Launch and recovery operations:
    - All CanSats will be launched by a rocket to an altitude of several hundreds of meters above sea level;
    - Once the altitude is reached, the CanSats separate from the rocket and descend under individual parachutes as shown in Figure 8;
    - Each team collects data by pointing an antenna to the descending CanSat;

DAY 3 – POST-FLIGHT ACTIVITIES

- Analysis of the acquired data and mission results;
- Final student presentation of data analysis and results to the jury;
- Jury evaluation, award ceremony, prizes and announcing the winner.

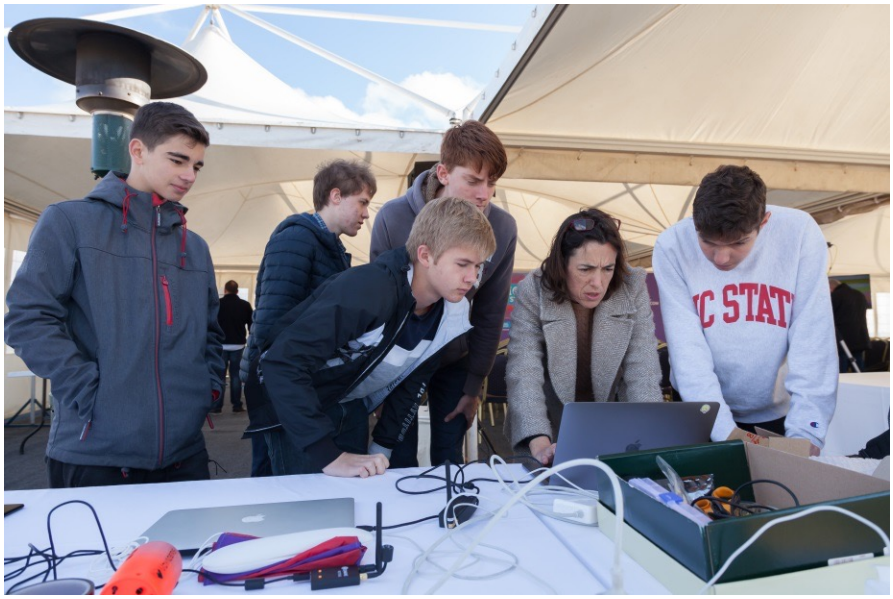


Figure 9: Team preparing for the rocket launch

Figure 10: CanSat Rocket Launch Event 2018–2019

Following the analysis of acquired data, the teams will present the results of their CanSat project in front of a jury appointed by Esplora. The evaluation jury shall then rank the teams against the criteria detailed in Section 6 employed throughout the whole competition. The presentation of results can happen on a later day after the rocket launch event. All teams are required to be prepared and present their work on a PowerPoint presentation or on similar presentation software.

Figure 11: CanSat team's presenting their results from the rocket launch event

The team placing first in the CanSat Malta Competition shall be admitted to the Space Engineer for a Day Event as participants, with Esplora funding related costs. This European level event is organised and coordinated by ESA and additional information will be published at www.cansat.eu in due course.

Figure 12: CanSat 2018–2019 winning team – MoniCanSat from St Monica School Birkirkara

6. EVALUATION AND SCORING

6.1 THE JURY

The Jury, **appointed by Esplora**, will be comprised of CanSat experts, education experts, or engineers and scientists who will evaluate the teams' performances during 'Phase 4: Launch Campaign Programme', taking into account the CanSat Pre-launch Report (PLR). The jury members will score the teams during the launch campaign and announce the results from their scoring in the Closing Ceremony.

The jury will typically have 4–6 members, and their fields of expertise can vary from science to engineering or education. The jury board is usually comprised of:

- Space science/engineering expert(s)
- IT/Electronics expert(s)
- Education expert(s)
- Radio communication expert(s)

6.2 SCORING

Performance in the following areas will be evaluated:

6.2.1 TECHNICAL ACHIEVEMENT

The Jury will take into account how the teams obtained the results, how reliable and robust the CanSat was, and how the CanSat performed. Innovative aspects of the project will be judged (e.g. the tools selected and the hardware/software used).

The aspects evaluated will be:

Mission's technical complexity: The CanSat's technical level, understanding of the technical concepts and the originality of the engineering aspects of the mission.

Performance of the Primary mission: The CanSat's technical performance in terms of deployment and data collection for the Primary Mission.

Performance of the Secondary mission: The CanSat's technical performance in terms of deployment and data collection for the Secondary Mission.

6.2.2 SCIENTIFIC VALUE

The scientific value of the teams' missions and the teams' scientific skills will be evaluated. This includes the scientific relevance of the mission, the quality of the technical reporting (both written and oral) and the team's scientific understanding that will be assessed from the team's ability to analyse and interpret results appropriately.

The aspects evaluated will be:

Scientific relevance: Assessment of whether measurements are done with a clear and well-founded scientific purpose, the extent to which the CanSat is used in an original way and if the data collection is appropriate for reaching the objective.

Scientific understanding: Level of understanding of the scientific principles that underlie the project.

Technical reporting: Ability to summarise with clarity and provide a readable and complete Pre-Launch report, the proper labelling of the graphs and use of the correct units and the ability to present scientifically sound data and interpretations during the launch campaign.

6.2.3 PROFESSIONAL COMPETENCIES

The Jury will assess the team's collaboration and coordination, adaptability and communication skills.

The aspects evaluated will be:

Teamwork: Collaborative effort of the team in order to complete the tasks in the most effective and efficient way.

Adaptability: Attitude towards continual improvement and ability to adapt to new conditions, both from the national competition and at the Space Engineer for a Day Event (if applicable)

Communication: Oral presentation skills, the ability to provide a captivating presentation involving confident speaking skills and a visually appealing presentation.

6.2.4 OUTREACH

The team will also be scored on how well the project was communicated to the school and the local community, taken into consideration any web or social-media pages, blogs, presentations, promotional materials, media coverage, etc.

6.3 MARKING SCHEME

The teams participating in the CanSat Malta Competition will be evaluated throughout the whole competition, with the due consideration to the following criteria:

Category	Weight %
Technical Achievement	35
Scientific Value	35
Professional Competencies	20
Outreach	10
Total	100

PENALTIES

Teams' final scores will be penalised with 1% per day of late submission of the CanSat Pre-Launch Report. Similarly, 1% of the final score will be subtracted per 10 euros extra spent over the maximum CanSat budget of 500 euros.

7. CANSAT REQUIREMENTS

7.1 REQUIREMENTS AND CONSTRAINTS

The CanSat hardware and missions must be designed to the following requirements and constraints:

1. All the components of the CanSat must fit inside a standard soft drinks can (115 mm height and 66 mm diameter), with the exception of the parachute. Radio antennas and GPS antennas can be mounted externally on the top or bottom of the can, depending on the design, but not on the sides.
2. The antennas, transducers and other elements of the CanSat cannot extend beyond the can's diameter until it has left the launch vehicle.
3. The mass of the CanSat must be between a minimum of 300 grams and a maximum of 350 grams. CanSats that are lighter must take additional ballast with them to reach the 300 grams minimum mass limit required.
4. Explosives, detonators, pyrotechnics, and inflammable or dangerous materials are strictly forbidden. All materials used must be safe for the personnel, the equipment, and the environment. In case of doubt by the judging panel, Material Safety Data Sheets (MSDS) may be requested from the teams.
5. The CanSat must be powered by a battery and/or solar panels. It must be possible for the systems to remain switched on for four continuous hours.
6. The battery must be easily accessible in case it has to be replaced/recharged.
7. The CanSat must have an easily accessible master power switch.
8. Inclusion of a positioning system for retrieval (beeper, radio beacon, GPS, etc.) is recommended.
9. The CanSat should have a recovery system, such as a parachute, capable of being reused after launch. It is recommended to use bright coloured fabric, which will facilitate recovery of the CanSat after landing.
10. The parachute connection must be able to withstand up to 500 N of force. The strength of the parachute must be tested to ensure that the system will operate nominally.
11. For recovery reasons, a maximum flight time of 120 seconds is recommended. If attempting a directed landing, then a maximum of 170 seconds flight time is recommended.
12. A descent rate between 8 and 11 m/s is recommended for recovery reasons. However,

the CanSat's descent speed must not be lower than 6 m/s or higher than 12 m/s for safety reasons.

13. The CanSat must be able to withstand an acceleration of up to 20 g.
14. The total budget of the final CanSat model should not exceed 500€. Ground Stations (GS) and any related non-flying item will not be considered in the budget. More information regarding the penalties in case the teams exceed the stated budget can be found in the previous section.
15. In the case of sponsorship, all sponsored items should be specified in the budget with the actual corresponding costs on the market.
16. The assigned frequency must be respected by all teams in the Launch Campaign. The range of allowed frequencies changes depending on the country where the event is hosted and will be communicated in due time. It is recommended that teams pay attention to the design of the CanSat in terms of hardware integration and interconnection, so the radio frequency can be easily modified if necessary.
17. The CanSat must be flight-ready upon arrival at the launch campaign.

7.2 MEETING THE REQUIREMENTS FOR THE LAUNCH CAMPAIGN

To verify that the CanSats are suitable for launch, a technical inspection and a drop test will take place at the beginning of Launch Campaign. The way the requirements are evaluated is as follows:

Requirements 1, 2, 3, 7, 10, 12, 13 and 16 will be evaluated on site by a specially appointed CanSat technical team. Teams that don't pass any of the tests at the first attempt will only be permitted one second chance to amend the issues, in order to meet all the requirements. In case of failing at the second attempt, the team will be considered not to have achieved flight status and their CanSat won't be approved for launch.

A statement of confirmation that the rest of the requirements are met should be included in the Pre-Launch Report, paying special attention to **requirement 14**, which must be stated in the document.

8. COMPETITION FINANCING

Esplora shall cover the costs associated with the CanSat Malta Competition, which is financed by Xjenza Malta and administered by Esplora.

While certain terms and conditions apply, the covered costs include:

- One basic CanSat kit per team which costs around €75. In addition to the provided kit, Esplora shall reimburse the school for all documented components used with the CanSat (including parachute materials) and relates ground station equipment up to a maximum of €370.
- Training Sessions delivered in Malta to the educators/team leaders leading the teams admitted to the CanSat Malta Competition.
- Costs associated with the test day and the launch day.
- Accommodation and transport expenses associated with the participation of the CanSat Malta winning team in the Space Engineer for a Day event.

9. NOTICE TO TEAM LEADERS – POST SELECTION PROCESS

After admittance to the competition, the team leader applying for and behalf of the school, the coding club or any other after-school groups will be handed a Memorandum of Understanding (MOU) articulated by Esplora. The MOU is to be signed between the head of school and the CEO of Xjenza Malta establishing the terms and conditions associated with this competition. The team leader is then obliged to obtain consent in writing from the respective parent/ guardian of all participating students once they are admitted into the competition. The outreaching part of this competition may include the taking of photographic, audio and/or video recording of students. This also applies during the activities of the CanSat Malta Competition such as the CanSat Test Day, Rocket Launch Event and the Post-Launch Award Ceremony. The consent shall also cover the taking of such media in the presence of the senior Esplora and Xjenza Malta staff, the Minister for Education, Sport, Youth, Research and Innovation and any other Member of the Parliament who may attend such events. Furthermore, such consent should also explicitly include that the students may walk along a rough terrain to recover the CanSat during the *Test Day* and the *Rocket Launch Event*. Any surface health risks in the location where these events will be held shall be identified by Esplora and communicated to the team leaders before the event itself to maximise safety awareness of the participants. Finally, it is also the responsibility of the school to provide to EspoloraT the attendance record of the students in each and for every event.

10. CONTACT

All questions and expression of interest should be directed to:

Email: stemengagement.esplora@gov.mt

Tel: 2360 2157

More information on:

http://mcst.gov.mt/space-directorate/sep/#cansat

ANNEX 1 – GUIDANCE FOR EDUCATORS/TEAM LEADERS TO FILL THE APPLICATION FORM

CanSat Malta Competition Proposal Form – For information only, the real application is online and can be completed here.

The educator/team leader is to submit the online application by **the 28th November 2025 at 23:59 CET.**

CanSat Team Name
Choose a unique team name. Ideally the team name is generated together with your students/ team member. A catchy and cool team name is preferred!

Educator/Team Leader's Contact Details	
Name and Surname:	Click or tap here to enter text.
Teaching Subject:	Click or tap here to enter text.
School's Name (or any other club):	Click or tap here to enter text.
School Postal Address:	Click or tap here to enter text.

Work E-mail Work:	Click or tap here to enter text.
Work Phone/Mobile Number:	Click or tap here to enter text.
School Level: (select one)	☐ Secondary ☐ Post-Secondary

CanSat Team Members	
Teams should have **4 to 6 students.** The team shall be led by the educator/team leader. If your school, coding club or any other after school coding group requires that more than one educator/team leader accompanies the students, the participating team needs to submit evidence of this. However, the total amount of participants must not exceed seven people (e.g. maximum of 6 students + 1 educator/team leader or 5 students + 2 educators/ team leaders) due to capacity limitations at the Space Engineer for a Day event.	
Student 1	
Name and Surname	Click or tap here to enter text.
Age	Click or tap here to enter text.
Student 2	
Name and Surname	Click or tap here to enter text.
Age	Click or tap here to enter text.
Student 3	

Name and Surname	Click or tap here to enter text.
Age	Click or tap here to enter text.
Student 4	
Name and Surname	Click or tap here to enter text.
Age	Click or tap here to enter text.
Student 5	
Name and Surname	Click or tap here to enter text.
Age	Click or tap here to enter text.
Student 6	
Name and Surname	Click or tap here to enter text.
Age	Click or tap here to enter text.

Scientific Mission	
What is the secondary mission that you have chosen for your CanSat? (In a few words)	This section must be brainstormed with your students. Ask your students to search the internet and explore real satellite missions, other CanSat projects and Arduino projects. Refer to the following tips to formulate your secondary mission: 1. Read the CanSat Malta Participation Guide; some secondary mission examples are listed within. You are encouraged to go beyond from what is listed in the participation guide. 2. Other ideas from previous European CanSat Competition are: a. Determine the possibility of life existence b. Automated Tracking Antenna 3. The secondary mission shall have a different scope from the primary mission! 4. The important thing is not to set an unachievable mission.

Where did you get the idea from? (e.g. from a real satellite mission, another CanSat project, a scientific publication, a book, etc.)	Your team is encouraged to list what inspired you to choose the secondary mission mentioned above and must specify from where you got the idea.
Outline the scientific or technical objective of your secondary mission. Highlight any innovative aspects.	To accomplish what is stated in the secondary mission, you need to outline the objective. For example, if we were to say our secondary mission is: 'to determine the possible of life existence on the planet', you need to specify how this can be achieved. Careful that this question only state 'Outline' therefore only a summary is expected. Any innovative aspects can be highlighted – how original is your idea?
Describe your secondary mission in detail. This part should link the scientific objective to the experiment itself. Explain how in practice you are going to fulfill the scientific goal.	This section continues with the above and **must be in detail**. Here you are expected to lay down a plan, with your team, and specify how your CanSat will be built. Here you are expected to mention what type of sensors/ actuators are you going to use and how are you going to use them. You are also expected that what is written here is both technical and practically achievable.
Which data will you measure, and how?	This ties up directly with the above. For example, for the primary mission: With BMP280 sensor, we are going to capture air pressure and temperature readings every second to the ground station. 1. Which data: Temperature in degree and Pressure in pascals; 2. How: BMP 280 sensors gathers data from the environment and logs it in every second. Something similar should be done for the chosen secondary mission.

What do you plan to do with your results after the flight? How will you analyze the obtained data?	Regarding the primary mission, with temperature and pressure recorded every second whilst the CanSat is descending, one can calculate 'Altitude vs time' as altitude is a function of both pressure and temperature. With the data gathered for the secondary mission, similarly one can present their findings by creating graphical plots and/ or calculate equations as with the primary. Analysing the graphical plots, one can assess whether the mission is a success and/ or able to draw conclusions on the results. There is no limit what you can do with your data, the important thing is that it must make sense and must be practicable.
NOTE	Most of the examples written here are based on the primary mission. Although the primary mission is important, it is a common output for all CanSat teams. You and your team will be assessed on your secondary mission. Hence, this part of the application should be primarily focused on the chosen secondary mission

Organization	
How will you distribute the work between the team members? Consider all aspects of your experiment (structure, software, data analysis, etc.)	E.g. Student 1: Hardware Design Student 2: Programming Student 3: Primary Mission and Parachute Design Student 4: Ground support, telemetry and data analysis Student 5: Secondary mission design Student 6: Marketing, media outreach and disseminating This is only an example and will vary from one team to another.
Do you have access to a workshop or a laboratory?	YES/ NO

How much time will your team have available to work on your CanSat, (total number of hours/ hours per week), and how will you spend it?	E.g. Each team member will spend approx. a certain amount of hours You can utilize a portion amount of time to meet up, and the rest to be spent either on individual work or in small groups. Contribution to the project should be equal throughout.
How does your team plan to finance its expenses? Are you supported by your school or other sponsors?	*If selected, the team shall be financed by Esplora through Xjenza Malta.* *Include here any other sponsors, if applicable:* Click or tap here to enter text.
Do you have all the material and equipment needed for your mission? If not, how do you plan to obtain it?	*All equipment associated with the primary mission will be provided by the Malta Council for Science and Technology. Secondary Mission components shall be purchased by the team and reimbursed by the Council up to the limits stipulated in the Participation Guide.* *Provide details on how you plan to obtain the secondary mission components:* Click or tap here to enter text.

Outreach Programme	
Describe your outreach programme for before, during, and after the CanSat competition. (e.g. newspaper articles, local radio, website, presentation at school, etc…)	The team will also be scored on how well the project was communicated to the school and the local community, taken into consideration any web or social-media pages, blogs, presentations, promotional materials, media coverage, etc.

The educator/team leader is to complete the online application form by the **28th November 2025 at 23:59 CET.**

ANNEX 2 – THE BASIC CANSAT KIT

The kit includes one CanSat board, which is what you will mostly be working with. Additionally, there is another board, which will be used as the ground station radio – you will use that to relay messages between a computer and the CanSat.

While CanSat NeXT already has a thermometer on board, the kit also includes a thermistor, which can be soldered to the board to measure temperature outside the board itself.

Finally, the kit includes two radio cables, which can be used to build basic antennas to enable communication up to a kilometer away. Only one cable is needed, but it is nice to have a backup. The heat-shrink tubing is included to add weather protection for the antennas. For more information visit this webpage.

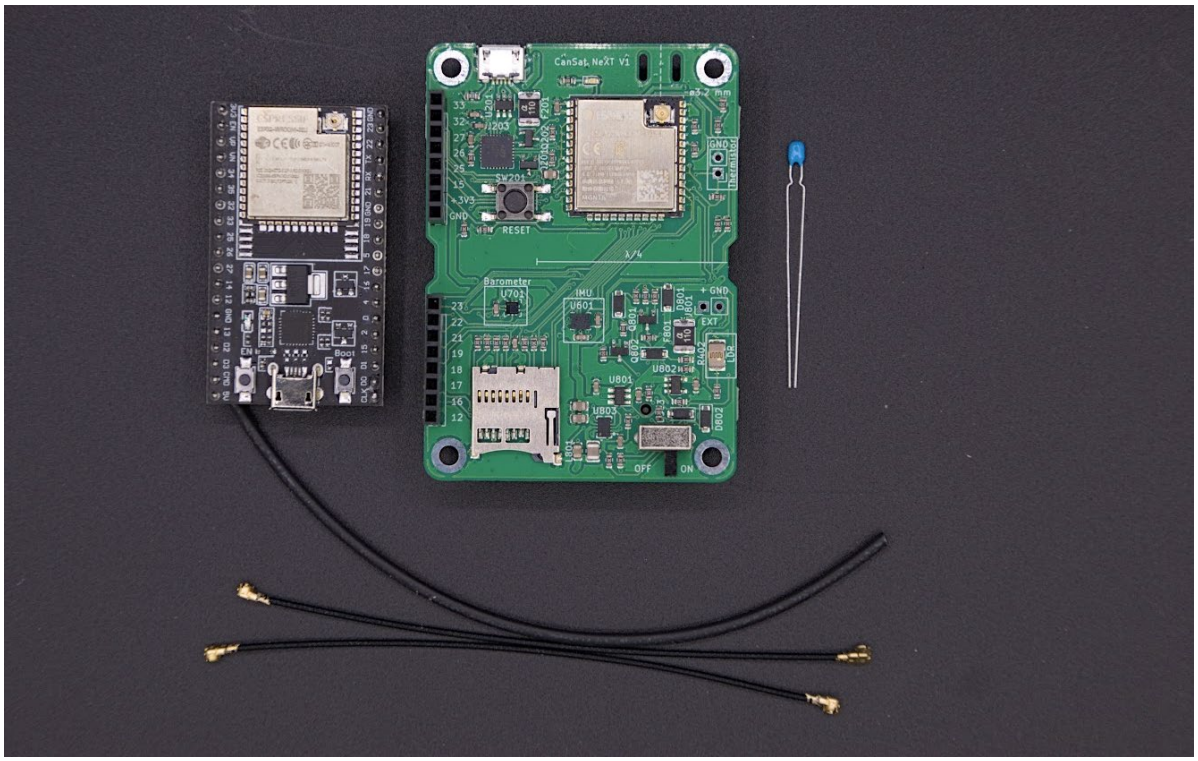


Figure 13: The basic CanSat kit

You can use the CanSat book, prepared by the European Space Education Resource Office (ESERO) in the Netherlands, as a reference. The team are expected to substantiate this kit with components acquired to carry out the secondary mission.