



CADSAT @HOME

GUIDELINES

→ Overview

Plan a groundbreaking scientific mission and 3D design your very own mini satellite from home! CADSat @home is an ESA education project for students between 12 and 18 years old. The project challenges students to design in 3D a satellite the size of a soda can, made with the design tool of their choice, and describe their experiment.

→ Timeline

Registrations are open from 12 May to 4 September 2020.

→ Who can participate?

Participation is open to individuals, virtual teams of young people aged 12 - 18 years old, and families. An adult must register on the CADSat @home online platform and submit the project for minors.

→ How to submit the project

1. Think of your mission objectives, getting inspired by [ESA missions](#):
Choose the modules or sensors that will allow you to fulfill your objectives. In every space mission, the scientists and engineers have to work together so that the satellite design best suits the science wanting to be conducted. All the great space missions throughout the beginning of the space age have used new and innovative instruments to peer into the universe and solve some of science's most exciting mysteries.
2. Choose the 3D modelling platform of your choice. You can read an overview of some free 3D modelling platforms [here](#).
3. Create a 3D model cylinder with dimensions 115 mm height and 66 mm diameter. Create the 3D version of your sensors and either present those sensors placed inside the CADSat, external to the CADSat case or provide a cross-section of your CADSat with the sensors showing. Once you're happy with the result, take a few screen pictures of your project in .jpg or .png format and save your project in .stl or .obj file. If you're using Tinkercad or 360 fusion, you can instead copy the project link - but you'll need to make sure it's public so that the ESA Education team can see it.
4. Go to [CADSat.esa.int](https://cadsat.esa.int) and create an account. Then, submit your project - including a description of your mission. If your project is approved, you'll see it soon in the CADSat gallery!

→ CADSat specifications

1. The team must design a CADSat to accomplish the compulsory primary mission, as follows:
The CADSat shall measure the following parameters and transmit the data as telemetry to the ground station:
 - Air temperature
 - Air pressure
2. All the components of the CADSat 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.
3. The CADSat must be powered by a battery and/or solar panels.
4. Inclusion of a positioning system for retrieval (beeper, radio beacon, GPS, etc.) is recommended.
5. The CADSat 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 CADSat after landing.

→ Disclaimer

CADSat @home is a non-competitive project. All participants that submit an entry that complies with the guidelines will receive a participation certificate. By submitting the project, the participants agree that their project will be shared on the CADSat platform. Participants accept that ESA Education and partners have the right to use the entirety or parts of the project for outreach and education purposes.

→ Questions

For any questions, consult the **CADSat @home** website (<https://CADSat.esa.int>) or send an email to cansat@esa.int.

→ Useful links

CADSat @home
<https://CADSat.esa.int>