The CanSat Design Challenge 2021-22 for Canadian High Schools

What is the CanSat Design Challenge?

The CanSat Design Challenge is a competition for Canadian high schools and select community colleges to design and build a **CanSat**.

What's a CanSat?

A CanSat is a **simplified satellite** which is the **size of a pop can**. It contains a computer and some sensors, and conducts some simple scientific experiments. We launch it up (or drop it from a helicopter) to a height of about 1km, and it collects data as it parachutes down.

What Does the CanSat Do?

Each CanSat has to **record the temperature and air pressure** once per second; and, you get to choose an additional experiment which it will conduct. There are two categories in the competition: in the **BEGINNER** category, your CanSat stores the data on a memory card on the CanSat; in the **ADVANCED** category, the CanSat transmits the data by radio to a receiver which your team builds.

Who Can Participate?

This competition is for Canadian high schools and select community colleges. You need a team of **4 to 6 students**. And an Advisor (teacher). You don't even need to be from the same high school!

What Do We Need in order to Participate?

Not much! We will provide you with a Beginner CanSat kit, if you'd like one. It would be great if you have some basic electronics & hobby tools, but we can probably help if you don't.

If you participate in the **BEGINNER** category, you'll only need to mail the CanSat to us and we will launch it for you then collect the data afterwards. If you are in the **ADVANCED** category, you'll need to travel to Calgary in May, 2022, for the launch campaign. We will do our best to help you with travel costs.

How Much Time is this Going to Take?

Most teams spend about 2-3 hours per week.

How much is this going to Cost?

It's absolutely free to enter! We can provide you with the basic electronics required for the BEGINNER category. You can add other experiments, and electronics, but the total cost must not exceed $800.
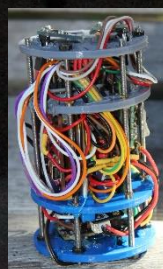
What if I Don't Know Anything about Electronics or Programming?

We will help you! Here are some of the online tutorials we will offer during the competition.

CanSats 101: I've just received my CanSat kit – where do I start!

We'll explain a little bit about each of the parts in your CanSat kit. Then we'll connect the CanSat Arduino computer to your home computer, and program it to blink a light on and off.

Lights and Sound

We'll create a simple circuit and program to turn a light on, wait a bit, then make a speaker beep. Plus, a demonstration on how to solder.

Temperature and Pressure

We'll go through the steps to connect the temperature and pressure sensor, then read those values and print them out.

Saving the Data in a File

Connect the memory card, then save data to a file on the card.

We're In! How & When Do We Register?

There is a registration form on our website: www.csdcms.ca. It is due by October 15, 2021.

Who took those Great Background Photos?

The photo of Comet NEOWISE was taken by Lawrence Reeves, the CanSat Competition manager, at Lost Lake, in Whistler, B.C. Photographing the night sky is one of his hobbies.

The photo of the rocket launching was taken by someone at the European Space Agency. That's the type of rocket which is used to launch CanSats in the ADVANCED category, up to a height of 1km.

What Do We Win If We Win?

Well, we have a beautiful hand-made space-themed trophy for each of the categories.

Oh – and did we forget to mention that if you are the winning high school in the ADVANCED category, you get to represent Canada at the European Space Agency's International CanSat competition which will be held in Europe in June, 2022?

Now *that* sounds like something worth competing for!

We are here to help you make a great experience for interested youth – we are looking forward to hearing from your team!