

Students for the
Exploration
and Development
of Space



Étudiants pour
l'Exploration et
le Développement
Spatial



Canadian Reduced Gravity Experiment (CAN-RGX) Design Challenge Corporate Support Package



Visit [seds.ca/projects/can-rgx](https://www.seds.ca/projects/can-rgx) for more information



www.seds.ca



SEDS-Canada



@sedscanada

About SEDS-Canada

We are Canada's only student-run non-profit that works at the national level to inspire and empower students joining the space industry, and to advocate for the advancement of space exploration in the public sphere.

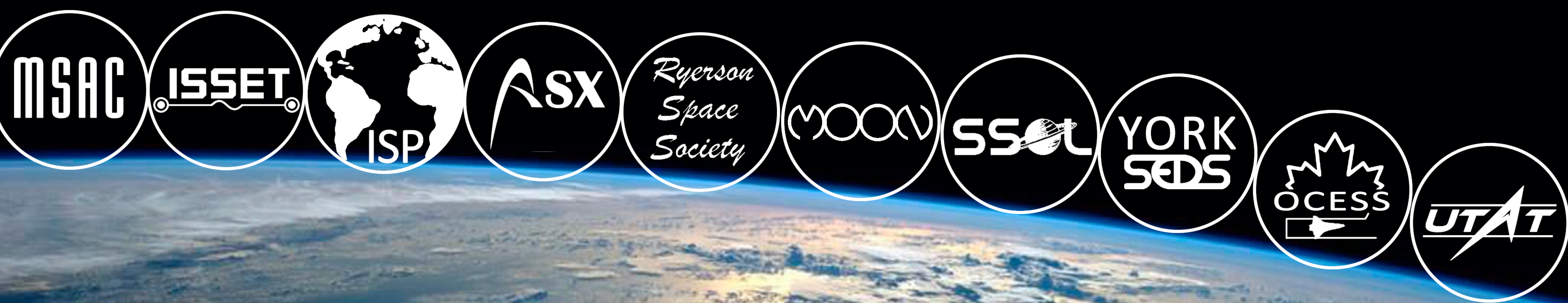
Student Empowerment

Along with our annual conference, design challenges, and competitions in entrepreneurship and astrophotography, SEDS-Canada helps students develop a professional network to not only join, but strengthen the space industry.

Advocacy

Through our growing network of student groups and our political advocacy efforts, we are building a collective student voice capable of advocating for the benefits of space exploration to the public at large, media and government.

An investment in **SEDS-Canada** is an investment in the **Canadian** space industry of tomorrow.

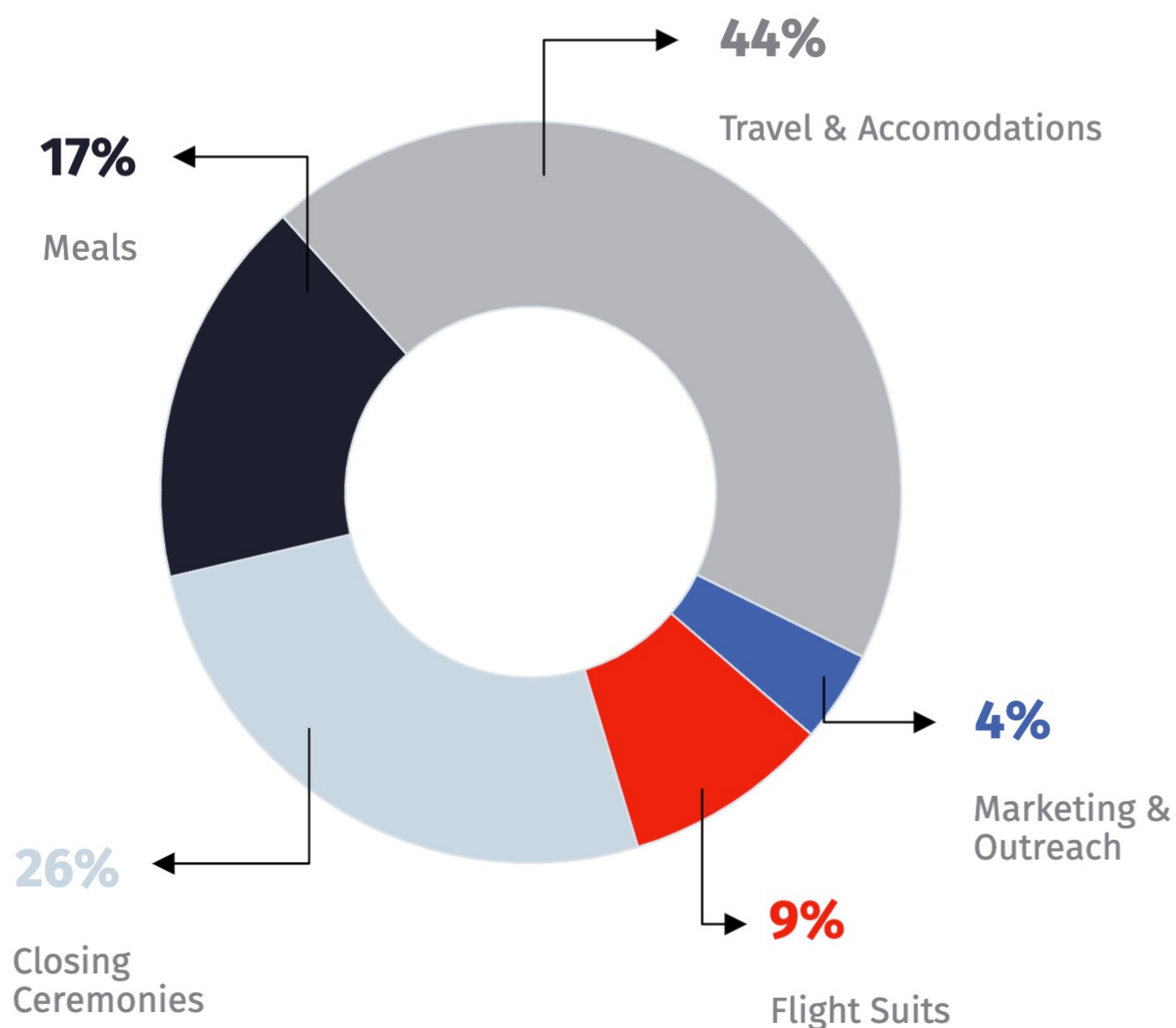


Message from the Team

In addition to having the Canadian Space Agency and the National Research Council of Canada as two of our long-term partners for several projects such as the Canadian Reduced Gravity (CAN-RGX) Design Challenge, we now seek to be the bridge between students and industry leaders such as you. As a sponsoring individual, corporation or organization, you will play a critical role in the realization of CAN-RGX. The total cost of CAN-RGX is \$12,458.13, not including the flight costs, and \$5,500 of this is student travel and accommodation expenses. We currently have no sponsoring organizations.

This sponsorship package will overview the CAN-RGX competition, competition statistics, features of two participating teams, and sponsorship benefits. Our events are excellent advertising and recruitment platforms because our members are exclusively students – most of whom will soon be seeking employment in the near future. We're always interested in hearing how we can mold our benefits to suit your needs.

We hope you are interested in supporting a future generation of Canadian space sector leaders!



Ad astra,



Louis Burelle
CAN-RGX
Project Manager



Patrick Chin
CAN-RGX Asst.
Project Manager



Kristen Cote
SEDS-Canada
Projects Chair



Competition Overview

The Reduced Gravity Experiment Design Challenge (codenamed CAN-RGX) is a competition that challenges post-secondary students across Canada to design, build and test a small scientific experiment to be flown onboard the National Research Council's (NRC) Falcon 20, which has been modified for reduced gravity experiments in association with the Canadian Space Agency (CSA). Students can propose experiments from a wide variety of research topics (e.g. life and physical sciences, engineering, natural science) after which four teams will be selected to fully design and build their experiments through a full engineering design cycle. Each team will choose two Mission Specialists to fly onboard the aircraft to run the experiments. Students will gain experience in experiment design and flight operations for a space-related project which will generate real scientific revenue without the high costs of launching an experiment to space.

NEW: We're working with the NRC to bring the Flight Campaign of this year's CAN-RGX competition to Calgary, Alberta. You heard it right: we're hoping to fly the Falcon 20 west! As of June 2020, this is still to be confirmed.

Timeline

- November 2019 | **Proposal submission**
- December 2019 | **Selected teams notified**
- March 2020 | **Preliminary Design Review**
- January 2021 | **Critical Design Review**
- February 2021 | **Test Equipment Data Package**
- Mid-February 2021 | **Flight Campaign & Closing Ceremonies**



Competition Overview

Experiment Selection

The CAN-RGX competition leverages the expertise of well-established scientific personnel from industry and academia. These individuals will act as Subject Matter Experts (SMEs) for the competition, serve as judges, and become objective mentors to the design teams.

Each year, judges choose 4 teams to participate in CAN-RGX based on criteria such as scientific merit, design feasibility, risk assessment, financial planning and educational outreach. The four selected teams for this year's CAN-RGX competition are featured on the next page.



Flight Campaign

The campaign will consist of 2 flights, with 2 students from 2 teams on each flight. Each flight will last 1.5 hours and consist of at least 8 parabolic maneuvers, each of which will produce about 20 seconds of near zero-gravity. **Sponsor banners can be placed in visible areas of the aircraft cabin**, as seen in the picture below.

After the flight campaign, the teams will be invited to a closing ceremony, where our sponsors can interact with the students, advertise their company banners, and bring guest speakers. The finalists will present their work and be awarded prizes: the team which demonstrates overall excellence in engineering, execution, and teamwork is awarded the First Place Prize, and the team which excels in outreach will win the Outreach Award.

Promotion

SEDS-Canada promotes CAN-RGX to Canadian students in the space and science community at large. We are targeting hundreds of university departments and faculty across the country, as well as advertising the competition through our University partners and social media networks. SEDS-Canada will arrange for teams to showcase their work on our website and at certain events, solicit general media participation, invite media to a press conference, and produce a summary video from footage collected during the flight campaign. At each step, our sponsors will be featured in our promotional efforts.



Competition Overview

CAN-RGX At a glance: some stats

>75 post-secondary students & 3 high-school students have participated in the design and build of a novel experiment, gaining experience in a full engineering design cycle

32 students have flown in microgravity on board the Falcon 20

>6 conference publications have been written based on results previous CAN-RGX challenges

>15 major grants and awards were awarded to past CAN-RGX participants (including 4 sponsorships to present at the 2019 International Astronautical Congress)

CAN-RGX results have been presented via a poster or a talk at >11 conferences

>15,000 unique people across Canada are reached on social media during one flight campaign

Team Features

In November 2019 a panel of judges from SEDS-Canada, CSA, and the NRC selected four teams to compete in the 2020 CAN-RGX Design Challenge. These are UA Space Design Group from the University of Alberta, uO Rocketry from the University of Ottawa, UBC Rocket from the University of British Columbia, and Phi-Six from Thompson Rivers University. Read about two of these teams experiments:

UBC ROCKET



UBC Rocket's experiment will **study the behaviour of microbial fuel cells in both micro- and hyper-gravity conditions**. Microbial fuel cells are likely to play an important role in the future of space travel due to their ability to produce electricity while simultaneously doing useful work such as wastewater treatment in extreme conditions or methane production. The team intends to measure the current and voltage of two microbial fuel cells throughout a parabolic flight path, which will yield information about the behaviour of multiple types of bacteria in various gravitational environments.

Did you know that approximately **1/6 of people on Earth are affected by knee osteoarthritis**? For this year's CAN-RGX campaign, UASDG's team of engineering and medical students are excited to investigate gene expression of bio-engineered cartilage tissue in micro-gravity. We will be tracking changes in precise gene expression and metabolites, as well as comparing male and female tissues. Not only is the experiment pertinent to astronauts returning to the ground, their findings could contribute to improving the health outcomes of knee osteoarthritis patients on earth!

 University of Alberta
Space Design Group



Sponsorship Benefits

A corporation or organization can become a Corporate Partner of SEDS-Canada by making an investment of \$200 or more in any of our projects, including our nationwide competitions and annual conference. For CAN-RGX, your support will go towards acquiring promotional materials and equipment, student flights and lodging, catering, and logistics for our flight campaign and closing ceremony. In return for supporting Canada's only reduced gravity experiment design competition we offer a number of benefits. We are always looking for creative means to provide visibility to our sponsors and look forward to hearing your ideas on how to optimize your benefits.

Advertising

Online

- Our CAN-RGX webpage will feature your logo in a size depending on the level of support. Gold sponsors have an opportunity to provide a brief description of their organization for our website and competition documents.
- Sponsors will be featured on our Twitter, Facebook, and Instagram pages prior to and during the Flight Campaign.
- Our promotional and project summary videos will feature our sponsors. Gold sponsors have an opportunity to provide a brief statement or be interviewed for each video.

Flight Campaign

- Gold sponsors may send 1 representative to our press conference prior to the flight campaign at the NRC (or Calgary, TBD).
- Students and SEDS-Staff will wear patches displaying the logo of our Gold sponsors on the sleeve of their flight suits.
- A small banner that showcases our sponsors will be placed inside the aircraft cabin. This, along with the flight suit patches, will be visible in our cabin footage which will be used in our project multimedia portfolio.
- Sponsors will have the banner with their logo behind students during filmed testimonials
- All sponsors have the opportunity to bring their own banners and any give-aways to the flight campaign and the closing ceremony, and arrange for photoshoots with the flight teams.
- Gold sponsors may give a brief speech at the closing ceremony.
- A sponsor can obtain the naming rights for the prizes to be awarded at the closing ceremony by providing additional funds. Their logo will be placed on the plaque for that prize. Prizes include a First Place Prize for the best team overall and an Outreach Award, for the team whose displayed exceptional outreach efforts.



Sponsorship Benefits

Participation and Recruitment

As a sponsor, you have the opportunity to not only indirectly support the project through financial contributions but also directly impact the students in this competition and SEDS at large.

SEDS-Canada Board of Advisors

A seat on the SEDS-Canada Board of Advisors is available to interested parties among our Corporate Partners. As an Advisor to SEDS-Canada, you will have the opportunity to guide the next generation of space leaders.

Ascension - Our Annual National Conference

A discount can be made available for the corresponding sponsorship level at our annual conference. This is a great way to further support and make an impact on the wider student space community.

Recruitment

By attracting student space enthusiasts from across Canada to our events, we present a great opportunity for our sponsors to recruit students. We are creating a database of entry-level jobs in the space sector available to our chapter members, with highlighted job postings and ad space given to our sponsors. Sponsors will also have access to a SEDS-Canada resume book.

Sponsorship Levels

| | Gold: \$1500+ | Silver: \$750+ | Bronze: \$300+ |
|---|---------------|----------------|----------------|
| Logo Placement on flight suits via Mission Patches | ✓ | ✗ | ✗ |
| Logo Placement (in flight Cabin, videos) | ✓ | ✓ | ✗ |
| Logo Placement (website, social media, documents, and banners) | Large Logo | Medium Logo | Small Logo |
| Ascension 2021 Discount | 50% | 50% | 30% |
| Contributors to Press Conference | 1 | none | none |
| Closing Ceremony Tickets | 2 | 1 | 1 |
| Closing Ceremony Speaker Slots | 1 | none | none |

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| Lunch Sponsor (4 available) | For \$200 , your company can become a Lunch Sponsor for one day during the Flight Campaign. You will receive all perks of the Bronze level. |
| Prize Sponsor: Outreach Prize and First Place Prize | For \$1000 you can name either the Outreach or First Place Prizes, present the award, and advertise your company at the Closing Ceremony. You will receive all perks of the Silver level (with the addition of a closing ceremony speaking slot). |

**We hope you join SEDS-Canada as a
Corporate Partner and help support the
next generation of space leaders!**



The CAN-RGX competition is a collaboration with the National
Research Council of Canada and the Canadian Space Agency

Canada



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