

SSEP: Dare to Dream Big Things

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SSEP (Student Spaceflight Experiments Program) is a great program. It inspires students to give it their all and strive for greatness at an academic level. Students are able to have an experience that impacts their lives forever. We are very grateful to have this opportunity to participate in the SSEP program. We also believe that Tomatosphere™ is another great organization that encourages students to strive for academic excellence by planning, predicting, and observing.

Tomatosphere™ lets students compare germination of tomato seeds sent to space (or treated in simulated conditions) and untreated seeds. The SSEP is a Flight Experiment Design Competition for microgravity research proposals of projects to be done in a mini-laboratory. After going through a two-step review process and a flight safety review, experiments are revised and are incorporated into the payload of the ferry vehicle to the International Space Station (ISS).

This project started by us coming together for the first time and just coming up with possible ideas for our project. At first we had wanted to send up animal DNA to see how it was affected by long-duration space flight, but then we realized that we couldn't. We then started to talk about what we could do that related to agriculture since Carter Ives is an agricultural enthusiast. We then started to talk about a project that we had previously done, with Tomatosphere™ seeds, where we grew seeds that had been to space once. We then decided to add to that project and send them up for a second time and we went from there.

The biggest challenge was the time limit. The three of us had so many ideas and things that we wanted to add to the project. Checking grammar, spelling, and forming proper sentences was very time consuming. The proposal had to be the best. Overcoming the time limit wasn't easy but we managed it. We spent many hours in class and at home writing and rewriting to get our proposal done in time. The load was shared between the three of us evenly to limit the stress level.

Just through participating in the SSEP project there are many take-aways, but by winning the SSEP there are even more. We believe that SSEP will take us very far and will give us a lot of benefits in the future. We believe that this will help us get jobs in the future and maybe even university scholarships! SSEP has enabled us three to become excellent team workers in and out of school. It has taught us valuable life skills such as taking others' advice, collaboration, and team work. We will take all of these lessons throughout the rest of our lives.

The students' experiment flew from the Kennedy Space Centre in Florida on the SpaceX Dragon on Monday August 14, 2017 and the experiment and mission patch were captured to the ISS on Wednesday August 16, 2017. Students from the school division also participated in SSEP Mission 3. Winning experiments were able to fly with a mission patch as part of the payload. Mission patches have been part of the NASA space program since Project Mercury first put astronauts in space in the 1960s.

Students in grades 5 – 6 were involved in patch development and 176 patch designs and write-ups were created. After being narrowed down to 12 finalists, the top-voted design per class, the entire school — students, teachers, administrators, custodians, and support staff — voted to select the mission patch winner.

For SSEP Mission 11, 1,959 proposals, developed by 9,870 students from grades 5 and up, were submitted from 21 participating communities across North America. The proposals were all reviewed and 913 were sent to Community Review Boards to select three finalists from each community. The National SSEP Review Board selected the winning proposal from each community which would fly to the ISS.



Figure 1: *Left: SSEP Mission 11 Mission Patch, By Wallace Glaspey*
In my mission patch, I put a rocket to show that we can use science to learn more about our solar system. I put the earth to represent where we live and who we are. I put the Stonewall quarries to represent our awesome town. I put the rings encompassing the earth, with our school name (whose space club planned a winning experiment for SSEP Mission 11), to represent that we can do anything when we put our minds to it. I also put stars in the background to represent that we only understand approximately 4% of the cosmos.
Right: Tomatoes grown from Tomatosphere™ seeds.

