



Student Spaceflight Experiments Program

Student Spaceflight Experiment Program (<http://ssep.ncesse.org>)

A Program of the National Center for Earth and Space Science Education (<http://ncesse.org>) and the Arthur C. Clarke Institute for Space Education (<http://clarkeinstitute.org>)

***Created to Address U.S. Strategic Need in Workforce Development for the 21st Century – SSEP is a bold commercial space venture utilizing the ISS to deliver a high caliber STEM education program, tuned to the next generation national science education standards, that inspires and engages the next generation of scientists and engineers.***

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**SSEP Mission 16 to the ISS:**

Ferry Vehicle to ISS: Space X-26

Launch Date: anticipated November 15, 2022

Launch Site: NASA Kennedy Space Center, Florida

Ferry Vehicle for Return: Space X-26

Unberth/Landing Date: TBD

Payload Duration on ISS: projected TBD days

Payload Designation: SSEP18 – *Ranger* (named for [NASA's Ranger Program](#), which imaged the lunar surface in advance of the Apollo Moon landings. Starting with Mission 16 to ISS, SSEP experiment payloads are named for NASA's robotic lunar exploration programs in advance of the Apollo missions; for SSEP Missions 12 to 15, SSEP experiment payloads were named for NASA human spaceflight programs; for SSEP Missions 5 to 11, experiment payloads were named for Apollo Command Modules; prior to Mission 5, payloads were named for Apollo Lunar Modules.)

Number of Student Team Flight Experiments: 24; 22 communities flying one experiment, 2 communities flying 2 experiments

For more information about SSEP Mission 16 to the ISS:

SSEP Community Profiles and Local Partners: SSEP Mission 16 to ISS –  
<http://ssep.ncesse.org/communities/community-directory/community-profiles-and-local-partners-ssep-mission-16-to-iss/>

Selected Experiments on SSEP Mission 16 to ISS –  
<http://ssep.ncesse.org/communities/experiments-selected-for-flight/selected-experiments-on-ssep-mission-16-to-iss/>



### **Brief Program Overview**

Launched in 2010, the Student Spaceflight Experiments Program (SSEP) is a remarkable U.S. National, even International Science, Technology, Engineering, and Mathematics (STEM) education initiative that gives typically, at least 300 students across a community the ability to design and propose real experiments to fly in low Earth orbit, first aboard the final two flights of the Space Shuttle, and now on the International Space Station.

Each participating community conducts a local Flight Experiment Design competition with student teams vying for an experiment slot reserved just for their community in a real research mini-laboratory scheduled to fly in orbit. Students can design experiments in diverse fields, including: seed germination, crystal growth, physiology of microorganisms and life cycles (e.g., bacteria), cell biology and growth, food studies, and studies of micro-aquatic life.

SSEP is designed to inspire and engage America's next generation of scientists and engineers, and is accomplished by providing each participating community their own very real Space Program. Students from fifth grade through undergraduates in 4-year colleges and universities are truly given the ability to be real scientists and engineers.

SSEP is a successful, authentic, highly visible research experience. The program garners very significant media coverage at the national and local level, e.g., SSEP and the payload of SSEP experiments on the first flight of the SpaceX Dragon out of Kennedy Space Center in 2012, was covered by the New York Times, Washington Post, MSNBC, Space.com, and dozens of regional media outlets.

To explore extensive media coverage of SSEP, visit SSEP in the News: <http://ssep.ncesse.org/ssep-in-the-news/>

For a more detailed overview of SSEP, visit the SSEP web site: <http://ssep.ncesse.org/about-ssep/>

### **Impact to Date**

Since program inception in June 2010, there have been eighteen SSEP flight opportunities—SSEP on STS-134 and STS-135, which were the final flights of Space Shuttles Endeavour and Atlantis; and SSEP Missions 1 through 16 to ISS. A total of **203 communities** have participated in the program, reflecting 42 States and the District of Columbia in the U. S., 5 Provinces in Canada, a community in Brazil and a community in Ukraine. Thus far 62 communities have participated in multiple flight opportunities – one community is conducting its 9th flight and another conducting their 8th flight with Mission 16 – reflecting the sustainable nature of the program.

Through the first eighteen flight opportunities, a total of **134,600 grade 5-16 students** across **2,822 schools** were fully immersed in microgravity experiment design and proposal writing, **27,237 flight experiment proposals** were received from student teams, and **340 experiments were selected for flight**. A total of **319 experiments have flown** through SSEP Mission 15. **24 more experiments** are to launch on Space X-26 as the SSEP Mission 16 *Ranger* payload of experiments. Through SSEP Mission 15 over 173,400 more students across the entire grade preK-16 pipeline were engaged in their communities' broader STEAM experience, submitting **144,800 Mission Patch designs**.

For more information on SSEP Missions to date–

Explore the Flight Opportunities to Date page, which provides launch and landing dates, and information on the ferry spacecraft, astronaut crews aboard ISS during experiment operation, and the SSEP flight experiment payloads.

Flight Opportunities to Date: <http://ssep.ncesse.org/current-flight-opportunities/>

Explore the separate SSEP website – the SSEP Community Network Hubsite – which is dedicated to the participating communities and the over **1,300 organizational partners** at the local level. At the Hubsite, you can read profiles of the participating communities, see a map of the Community Network, read about the selected flight experiments and flight Mission Patches, explore the many hundreds of media articles on SSEP, and watch videos of student teams reporting out at the SSEP National Conferences in Washington, DC.

SSEP Community Hubsite: <http://ssep.ncesse.org/communities/>

Map of the Community Network: <http://ssep.ncesse.org/communities/#map>

The Student Spaceflight Experiments Program (SSEP) is a program of the National Center for Earth and Space Science Education (NCESSE) in the U.S., and the Arthur C. Clarke Institute for Space Education internationally. It is enabled through a strategic partnership with Nanoracks, LLC, which is working with NASA under a Space Act Agreement as part of the utilization of the International Space Station as a National Laboratory. SSEP is the first pre-college STEM education program that is both a U.S. national initiative and implemented as an on-orbit commercial space venture.