

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
Interactive Presentations - IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (IPB)

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THERE IS NO “I” IN SPACE: INTEGRATION OF PBL AND SEL IN THE RAMON SPACELAB

**Abstract**

Ramon Spacelab is a research-based education program, providing students a unique opportunity to develop and design an experiment that is launched and conducted in the International Space Station.

SpaceLab is structured by seven group missions, commemorating NASA's Columbia STS-107 mission astronauts, among them- the first Israeli astronaut, Ilan Ramon. The program missions' methodology is based on NASA's Project Management approach, and on Israel's Air Force fundamentals: teamwork collaboration, role assignments within the team, providing and receiving feedback, group personal inquiry, creative and critical thinking, problem-solving, public speaking and more. Hence, implementing most innovative learning practices.

Launched in 2016, the program has 4500 alumni and nowadays operates worldwide: with over 1500 Israeli students annually and 500 students abroad from Singapore, Chile and Slovenia. To this date, SpaceLab students have launched 28 experiments to the ISS.

SpaceLab's advanced pedagogy is designed not only to encourage young students to major and excel in STEAM but enables children to acquire necessary soft skills for the changing reality in the 21st century and future workforce. The program implements social-emotional learning (SEL) to achieve personal and collective goals, establish and maintain supportive relationships with their peers and partners. One of these critical skills for succeeding in today's world is teamwork, a skill which is lacking in the formal educational system.

To accomplish this, the students lead the missions, along with facilitation by teachers and mentors, that are professionally trained by the Ramon Foundation. During each of the seven missions, the class is divided into groups of 5 students, each student is assigned to a specific team role. Following specific guidelines, the teams must meet strict deadlines and experience reviews and feedback sessions. Each of the groups then presents its experiment in the Semi-finals to distinguished professionals from the space industry and researchers from the academy. The space professionals chose the one most suitable and applicative experiment that the students, as a reunited class, will present in the SpaceLab finals. The three winning experiments in the finals are launched to the ISS and performed by astronauts.

The educational methodologies used in the Ramon Spacelab program will be presented, with distinct emphasis on teamwork, and its contribution to the success in such a competition and getting a group's experiment to space. Other STEAM methodologies and soft skills acquired by the students throughout the program, science abilities and affinity will be furthered discussed.