



MicroLADA

Educational Plant Growth Chamber



micro LADA

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Micro-Lada is a classroom version of Lada, a vegetation chamber created to provide a "space garden" for astronauts during their long flights. Named for the ancient Russian goddess of spring, Lada resides on the Russian segment of the International Space Station (ISS). Since its launch in 2002, Lada has produced a continuous harvest of fresh vegetables, providing cosmonauts with nutritional supplements and therapeutic recreational activity.

Utah State University's Space Dynamics Laboratory (SDL) collaborated with the Russian Institute of Biomedical Problems to develop Lada. The information collected by Lada and SDL's other space agriculture experiments will be vital for the future design of long-term space missions to the Moon, Mars, and beyond.

SDL developed Micro-Lada to help teachers and students learn more about plant growth and considerations in a micro-gravity environment. Working with Micro-Lada, students can explore challenges such as watering plants without gravity and optimizing light for plant growth.

International Collaboration with the following:



Japan

Okayama Prefectural Kurashiki Minami Senior High School (Okayama)
 Research Institute for Bioresources, Okayama University (Okayama)



Russian Federation

The Russian Cosmonauts on the ISS

Moscow City Palace of Children's and Youth's Creativity (Moscow)
 Lyceum 1525 "Vorob`evy Gory" (Moscow)
 Interschool educational center 15 (Moscow)
 Lyceum 344 after Prince of Oldenburgh (St. Petersburg)
 Institute of Medical and Biological Problems,
 Russian Academy of Sciences (Moscow)



United States of America

Sterling Elementary School (Alaska)
 Cedar Point Elementary School (Virginia)
 South Cache Middle School (Utah)
 Viewmont High School (Utah)
 Bountiful High School (Utah)
 Indian Hills Elementary (Idaho)
 Highland High School (Idaho)
 University of Florida (Florida)
 Space Dynamics Laboratory/Utah State University

If you are interested in obtaining a Micro-Lada kit for your classroom, contact Gayle Bowen at outreach@SDL.usu.edu.

Education & Public Outreach

SDL offers a complete education and public outreach approach (EPO) to increase the number of science and math professionals in the workforce. Each year hundreds of thousands of students are involved in science research activities provided by SDL. This extensive outreach includes students of all ages: K-12, undergraduate, graduate and PhD development, including areas of underserved and underrepresented regions. National and international collaboration is essential in our global economy. SDL enhances student's understanding of the global marketplace by offering national and international research projects throughout the world.

- Research, materials and presentations are developed to meet the needs of varied audiences including those communities that have traditionally been underserved and underrepresented.
- Scientists and engineering professionals mentor teachers and students and collaborate with our extensive EPO partnerships to develop science content. Using existing scientific experiments, schools can participate in real-life research projects. Work with the EPO partners to develop science content for teachers, museums and planetariums.

Student Research



Floating Potential Measurement Unit (FPMU)

The FPMU is composed of four sensors that monitor the electrostatic charge of the Space Station as well as the surrounding ionospheric plasma density and temperature. This information is used to ensure the safety of the astronauts during their space walks, known as Extra Vehicular Activity (EVA).



SDL PhD Tomorrow Fellowships

SDL/USU offers PhD Fellowships to support research related to space engineering and associated related sciences and technologies. It is open to students in Electrical and Computer Engineering, Mechanical and Aerospace Engineering, Physics, Natural Resources and Agriculture. Each fellowship carries either an annual stipend of \$30,000 renewable for up to three years, or an annual stipend of \$25,000 for up to four years. The type of fellowship is determined by qualifications and negotiations with supervising professor and the student's department. Learn more at www.sdl.usu.edu/employment/fellowships.



Internships

SDL offers space science and engineering internships at its facility in Logan, Utah. Each internship lasts 3-4 months and is project based. These internships are open to undergraduate seniors or graduate students to provide an opportunity to work on professional-level assignments that complement the student's academic studies. An important objective in our internship program is to encourage the participation of women and minorities in our research projects.



Engineering State

SDL collaborates with and supports the USU Engineering State program. Each year the College of Engineering sponsors the event for junior and senior high school juniors and seniors. Students interested in attending Utah State University experience a hands-on, in-depth, view of each department within the College of Engineering. SDL scientists demonstrate experiments using cryogenics and infrared technology and host tours in support of this event.

Real World Applications

SDL hosts tours and provides hand-on activities to help students understand the importance of math and science.