



Zero Gravity Corporation Education Program Descriptions



Funding for ZERO-G Education Programs

Hands-On Education...Lifetime Inspiration

Program design descriptions are provided below. These designs are flexible and can be molded to meet your grant application needs.

Zero Gravity Corporation

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GETTING STARTED - YOUR ZERO-G EXPERIENCE

So you want to fly on Zero Gravity Corporation's (ZERO-G's) airplane, *G-FORCE ONE*, to experience microgravity! You are probably asking: "Where do I start?" "How can I obtain funding?" "Who supports these kinds of initiatives?" ZERO-G is here to answer these questions and provide guidance as you develop funding proposals for your education, training or research goals.

This document provides a brief description of ZERO-G's program types which may be written as stand alone programs for your application or as part of larger educational initiatives for your class, school, district or state.

For detailed assistance, please contact Michelle Peters, Director Education Programs at Michelle@GoZeroG.com.

ZERO-G PROGRAM TYPES

ZERO-G's weightless experience provides a unique lab setting where individuals can learn about and work in micro- and hyper- gravity environments. Below is a list of current program designs together with a brief description:



Teacher Professional Development

The professional development program is flexible and provides a range of depth. Program designs include:

- a. One-Day Lab – This is a half-day workshop including the math and science of (a) micro- and hyper-gravity environments and (b) parabolic flight (the means through which different gravities are created). It also includes a mission

briefing on the safety requirements, time to select from pre-defined experiments, the parabolic flight and post-flight recognition ceremony.

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b. Comprehensive Professional Development Program – This design may require a comprehensive two month preparation period including online modules, educator workshop, experiment design/implementation, and classroom work with student participation. The pre-work period is followed by a full day for the parabolic flight including a recognition ceremony. After a brief period during which post-flight resources have been incorporated into participant classrooms, there is an online summative evaluation. As an additional benefit, ZERO-G has partnered with Purdue University Calumet to offer college credit hours for qualifying educators in this extended program.

All professional development designs provide: (1) content knowledge about the math and science associated with micro- and hyper-gravity environments and parabolic flight; (2) in-flight safety and regulations training; (3) in-flight experiments; (4) still images and video of the parabolic experience provided for classroom use; (4) classroom resources including - teacher workbook, flight suit, and flight bag; (5) national standards alignment and, of course, (6) a ZERO-G weightless flight.

Weightless Lab for Students

Student programs with ZERO-G are also flexible in their design. Teachers may choose to expand these basic designs for enhanced educational benefit for students. Here are the core programs:

a. One-Day Lab – the one-day lab is similar to the teacher one-day workshop with flight. In the morning, student participants learn about the math and science of weightlessness as well as parabolic flight. Once all educational content, safety guidelines and in-flight rules are covered, they select up to three experiments from a predefined list to perform and document during their flight. Students then participate in a





weightless flight on *G-FORCE ONE* followed by a post-flight award ceremony recognizing their achievements.

b. Extended Lab – the extended student lab experience requires up to a month and incorporates full day classroom training with ZERO-G staff, the weightless flight on *G-FORCE ONE* and a follow-up evaluation.

c. Student Competition – a ZERO-G student competition presents a unique program opportunity that involves a large number of participants with a narrowing focus and culminates in a ZERO-G flight. Additional components and goals may be designed to complement the program; however the core program design generally includes: attendance at a workshop with ZERO-G staff to learn about flight rules and requirements, classroom groups or afterschool clubs that design and build experiments (can be science, art, math, etc.) or engineering structures, groups compete at increasing levels until a predetermined number of teams win. The winning team members fly their experiment(s), art work, engineering creation(s), etc. on a parabolic mission with ZERO-G.

Benefits for Teachers and Students

Professional Development Credit: Completion of the workshop training and flight program meets most educators' professional development requirements.

National Standards Alignment: The ZERO-G education programs align with several National Standards for Mathematics and Science.

Improved Classroom Environment: Three years of evaluations show that teachers who participate in the ZERO-G Education program see immediate improvements in students' classroom participation, attendance, college/career ambitions, and understanding of complex science, technology, engineering and math (STEM) concepts. Initial results indicate an improvement in student achievement on standardized tests.

Amazing School Projects: Students have a once – in – a – lifetime chance to conduct experiments in a weightless environment. It's an amazing opportunity for a stellar school project!



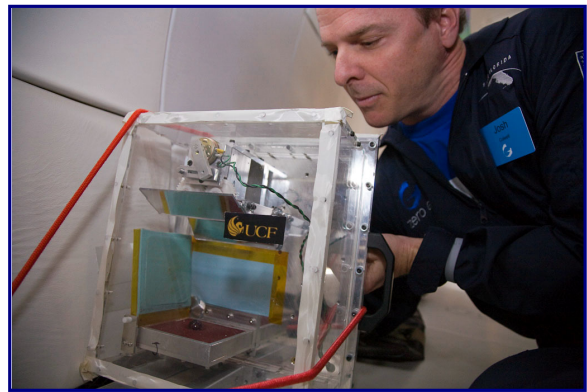
Documentation for Classrooms: Captured in high definition video and photos, flyers receive a video of their flight as well as photos to support their curriculum. Flyers are also encouraged to bring a small camera or video recording device to record personal experiments.

Workforce Training

Space travel and exploration are becoming ever more common as developing countries build space programs. Additionally, as the commercial space industry grows on a global basis, more and more organizations will seek qualified aerospace engineers, technicians, scientists and mathematicians to support their goals. The ZERO-G workforce training program, in conjunction with its partners, helps prepare today's workforce for tomorrow's aerospace demands. This program supplements existing college and workplace training to give the future workforce the necessary skills to understand, work and live in the micro-gravity environments of outer space.

Research for University, Corporate and Government

Research is a key component of advancing space science. However, opportunities to conduct research on other planets and in outer space are limited and costly. As a result, parabolic flight is commonly employed as an alternative. ZERO-G's missions offer researchers the opportunity to design experiments suitable for reduced gravity environments as found on Mars, the Moon and space. Individual programs are designed in conjunction with the research entities and are customized to meet scientific goals as outlined by the research proposed.



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