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JM Teacher Defies Gravity

By Andrea A. Firth



JM science teacher Deanna Josephson floating weightless Photo Doug Kohen

Weightless flight-it's like nothing on Earth. Ask Deanna Josephson, a science teacher at Joaquin Moraga Intermediate School, about her out-of-this-world experience. "Amazing, awesome, unlike anything that I have ever done," reports Josephson, who recently was a passenger on a zero-gravity aircraft flight where she felt weightlessness comparable to what astronauts experience during space travel.

Josephson was among sixty math and science teachers from throughout California who experienced the zero-gravity environment through the Northrop Grumman Foundation Weightless Flights of Discovery program. An astronaut wannabe from an early age, Josephson attended a weeklong space camp as a middle-schooler, so a trip into weightlessness was a logical next step. "After I applied for the program, I waited two months to learn that I had been chosen for this flight," she states. "I was really excited when I found out."

This excitement was palpable as the teachers boarded the flight on G-Force One, a modified Boeing 727-200, operated by Zero Gravity Corporation, which has partnered with the Northrop Grumman Foundation for the past three years to provide teachers with this unique opportunity. The first-class flight included aviator jumpsuits, which enabled the novice flyers to look the part of a "zeronaut" as the participants are called. Once the aircraft achieved a complete zero-gravity environment, the teachers who ranged in age from their mid-twenties to mid-sixties, enjoyed the moment and laughed, hooted, and hollered just like a bunch of kids.

Weightlessness on earth is created through parabolic flight-the aircraft is taken through a series of maneuvers called parabolas, or arcs, where the plane climbs and dives between the altitudes of 24,000 and 32,000 feet. The controlled descent creates a temporary zero-gravity environment, which lasts approximately 30 seconds.

The teachers were eased into weightlessness with a few warm-up dives that simulated the low-gravity environments of Mars, where teachers felt 1/3 their weight and could do one-handed push-ups with ease, and the Moon, where teachers took bounding Neil Armstrong-like leaps around the plane's "floating zone." From that point forward the arcs took the passengers into zero gravity for a total of 15 weightless episodes.

In advance of the flight, Josephson participated in a daylong workshop where she designed microgravity experiments that were videotaped so that she could bring the experience back to the classroom. "I asked my students to contribute ideas for the experiments that I would conduct on the flight, and they suggested trying to drink water and blow bubbles while weightless," she explains. "The water experiment was a lot tougher than I expected," says Josephson, who found that one of

the biggest challenges was keeping the straw in the bottle while floating weightless.

Josephson's students shared her enthusiasm for experiencing a temporary escape from gravity's pull. "I thought it was really cool, and that she would have a lot of fun," says Clark Nichols, a 7th grader in Josephson's science class. "If she could have taken the whole class on the flight, I would have definitely gone," he adds.

Over the next few months, more than 200 teachers across the country will experience zero-gravity flight through the Weightless Flights Discovery program—one of several programs sponsored by the Northrop Grumman Foundation to promote education and student interest in science, mathematics, and related fields. "Every engineer, every scientist, every technically trained person in our nation can look back and identify a teacher who played a significant role in his or her decision to pursue a technical career," explains Sandra Evers-Manly, president of the Foundation. "This program is all about giving teachers the tools and experience they need to show their students that math and science are not only entertaining, but can also be the basis for a fascinating career."

"I try to bring astronomy and space exploration into the classroom discussion whenever possible, because the kids get so excited about it," states Josephson. "I'm excited about space exploration and what NASA is doing. After this experience, I feel like I can bring a personal perspective to the discussion."



Deanna Josephson (second from left) flying like Superwoman Photo Doug Kohlen

A Life Changing Experience

People talk about the power of the press, but they don't often speak much of the perks of the press. When the Lamorinda Weekly was invited to cover a local teacher's experience of weightless flight, the editor kindly offered me the story. In truth, I almost passed the experience up. I get carsick driving across the Bay Bridge, so the idea of taking a flight that simulated a roller coaster ride left my stomach reeling. However, when I mentioned the zero-gravity opportunity to my two teenagers, they excitedly blurted out that they had just seen the guys from MythBusters on board the very same zero-gravity plane. The envy in their voices made it clear to me that this was something too cool to pass up.

I set a goal to being in the moment when the flight went weightless, to achieving a Zen-like state, to enjoying a wild ride. Secretly, I wanted to get through the flight without watching my stomach contents float by. I went on a water diet and skipped dinner the night before and breakfast the morning of the flight, and I added some pharmaceutical insurance by taking a Dramamine an hour before take off.

There were no windows in the front two thirds of the plane, so I had no idea where the pilot had taken us to find the 10-mile wide and 100-mile long stretch of airspace needed to conduct the 15-parabolas I had been promised. We were directed to lay flat on our backs, and I felt fairly relaxed as the aircraft climbed upward at a 45-degree angle, and my arms and legs were pressed to the floor by the G-force. As we pushed over the apex of the arc, I felt my stomach lurch, but within a second I was floating in the air and smiling uncontrollably. No nausea, just euphoria. When the flight leader shouted "Feet down," I obeyed the command, not wanting to land on my head. I was ready for another round of weightlessness. In fact, I couldn't wait.

I have been in a hot-air balloon; it's a nice ride but not even close to a zero-gravity experience. And,

I never quite understood the attraction of being an astronaut, but having experienced weightlessness, now I do. There are not many events in life that you classify as life changing—moving, marriage, childbirth. It might seem unbelievable that fifteen 30-second intervals of weightlessness could fall in the life-changing category, but I think it does.

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