

Giving Back from **SPACE:**

Astronaut Alumnus Partners with
School to Engage Students in CTE

By Judy Bass



PHOTO CREDIT: JUDY BASS

T

he wintry morning of Feb. 13, 2018, was anything but typical for the staff and students of Blue Hills Regional Technical School in Canton, Massachusetts. They were excited; the student population — of approximately 840, drawn from nine suburban communities south of Boston — was about to experience something truly extraordinary.

Students in grades nine through 12 streamed into the cafeteria, set up with rows of chairs and a large pull-down video screen, and the adjacent gymnasium, where three 70-inch television monitors were set up to contain overflow. A reporter from WCVB-TV, Boston's ABC network affiliate, arrived with her cameraman as distinguished guests filed in; state legislators, Blue Hills Regional District School Committee members and officials representing career and technical education (CTE) throughout the Bay State took their seats.

Colorful posters created by Blue Hills design and visual communications teacher Joann Murphy bore the school's logo, the NASA logo, and a photo of one of the school's most illustrious graduates: NASA Astronaut Scott D. Tingle, class of 1983, below the triumphant slogan, "Celebrating the Journey!"



Excitement builds as students at Blue Hills Regional Technical School in Canton, Massachusetts, await NASA astronaut Scott Tingle's appearance on-screen in real time from aboard the International Space Station.

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NASA astronaut Scott Tingle aboard the International Space Station with a replica of the ISS made on a 3D printer by Blue Hills engineering student Christopher Bullock. It bears the inscription, "Blue Hills Regional Tech, Scott Tingle, Class of 1983." Tingle is wearing a Blue Hills t-shirt.

Celebrate the journey.

It was indeed a time to celebrate, as well as a time to learn, observe and vicariously experience the thrill of space exploration thanks to Tingle, now 53, who spoke with and responded to questions from students about his mission aboard the International Space Station (ISS). What made this session especially remarkable was the fact that Tingle was conducting it in real time from the ISS as it orbited 240 miles above the Earth at a speed of 17,150 miles per hour. (Tingle, whose hometown is Randolph, Massachusetts, could hear but not see the people at Blue Hills; the students saw and heard him as clearly as if he were in the next room.)

Tingle, along with Russian Commander Anton Shkaplerov of Roscosmos and fellow flight engineer Norishige Kanai of Japan's Aerospace Exploration Agency, lifted off almost two months earlier aboard the Soyuz MS-07 spacecraft, which launched from Kazakhstan's Baikonur Cosmodrome for a two-day flight to the ISS. The three men joined three other astronauts — Alexander Misurkin of Roscosmos, plus Mark Vande Hei and Joe Acaba of NASA — who were already on board. Completing some 200–250 experiments, many of which involved the effect of microgravity on plants and the human body, was a top item on the crew's agenda.

The occasion with Blue Hills was one of dozens of "down-links" — the technical term for the transmission from a spacecraft to Earth — held between the ISS and schools nationwide,

for students and educators at every grade level to ask probing questions galore about their experiences in space during NASA's "Year of Education on Station."

For Tingle, it was yet another way to give back to the school that gave him a foundation and the skills necessary to pursue a career in space exploration. At Blue Hills Regional Technical School he studied machine drafting under teachers Paul Dumas and William Cahill, where he developed a flair for discovering how things operate and liked to pore over the intricate way they are assembled.

He's been back before. Tingle's video visit from space wasn't the first time since he graduated; he was the keynote speaker at the school's commencement in 2012 and, when he was informed that he would be going up on the ISS, Tingle asked Blue Hills for a lightweight memento to take with him. For this, Superintendent-Director James P. Quaglia had an idea to 3D print a miniature replica of the ISS emblazoned with the words "Blue Hills Regional Tech, Scott Tingle, Class of 1983." Christopher Bullock, a student in engineering, created the replica. Two students from the school's construction program, Jill Yurewicz and Robert Devine, then crafted a wooden box for the model with the letters "N-A-S-A" carved into the lid in a futuristic font. Tingle did in fact take the replica with him and displayed it during his space chat with Blue Hills.

"[Attending Blue Hills turned] out to be one of the best decisions I've ever made," Tingle said in a podcast recorded for NASA (2017). "By the time I was in 11th grade, I was already working part time as a machine draftsman. And then, in my senior year, because I had excelled on a lot of the program requirements, instead of going to school on my shop weeks, I would go to work. And so I saved up enough money to get me through my first year of college. I never would have gone to college had I not had that opportunity."

After high school, Tingle attended Southeastern Massachusetts University (now the University of Massachusetts Dartmouth) to earn a Bachelor of Science in mechanical engineering, in 1987, and then a Master of Science in the same field from Purdue University the following year. Commissioned as a naval officer in 1991, Tingle is a captain in the U.S. Navy and a decorated pilot.

His ultimate achievement came in 2009, however, when he was chosen for the highly selective Astronaut Training Program at NASA. This was the culmination of a long-sought dream for Tingle, who declared to his mother that he wanted to be an astronaut after marveling at the moon landing on July 20, 1969

— a historic milestone that occurred just one day after Tingle’s fourth birthday.

Leverage the power of community.

The connection with Tingle in space, a headline-making first for the 52-year-old school, was a milestone in itself and one that required months of intensive planning and brainstorming. A team was formed, led by Quaglia, who is the immediate past president of the Massachusetts Association of Vocational Administrators (MAVA), and Blue Hills Principal Jill Rossetti.

Among the participants were the school’s two information technology staff members, IT Manager Michael Schantz and Technician Matthew Eisan; Academic Director Geoffrey Zini; Vocational Director Michelle Sylvia; and others who met frequently to vet scores of questions submitted by students for Tingle and plan the logistics of the event. The most challenging aspect involved navigating complex technical arrangements between the school and the Johnson Space Center in Houston, Texas, so all would proceed smoothly. If things went awry for any reason, the resulting educational opportunity would be lost.

Happily, though, Blue Hills’ visit with Tingle was a resounding success. First, he wanted the students to put themselves in his place, when he was a teen just like them who yearned with all his being to soar. “Picture yourself flying,” he said. “Then imagine you grow up and you realize you really can fly!”

In a few brief moments, he had captured them totally. The students were riveted as Tingle, characteristically articulate and upbeat, patiently responded to each question in detail. Questions asked by Blue Hills students ran the gamut:

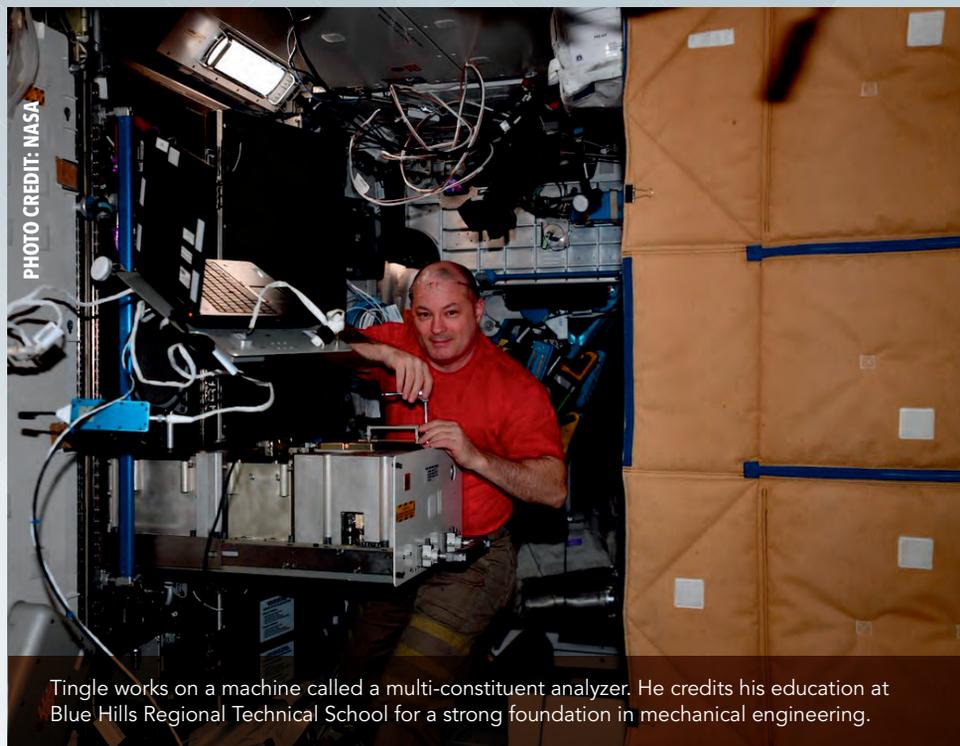
- How do you shave your face in an environment with no gravity? (He used a small electric razor near a vent.)
- What does it feel like to be in space? (“The view of our beautiful Earth is amazing,” Tingle said, adding that he could witness 16 magnificent sunrises a day as the ISS zoomed its way through the heavens.)

- How does the cuisine taste up there? (Tingle was enthusiastic; the dishes he ate, such as lasagna and beef ravioli, were rehydratable and “not bad”)
- Do you think NASA will someday go to MARS? (Read his answer in the box on page 33.)

The event concluded with a burst of sincere appreciation from Tingle, as well as a heartfelt exhortation: “Thank you for inspiring me! Don’t forget to dream big!”

The salient, overarching point Tingle made to the young people who heard and watched him at Blue Hills that day — not only with his words but simply by his presence as a respected member of one of the most elite professions anywhere — was about the lasting usefulness of what he learned at their school over three decades ago.

Lauding the education he received as “great technical and academic training combined with hands-on skills,” Tingle stated that the four years he spent at his beloved high school were an all-around “great opportunity that was really valuable in my career.”



Tingle works on a machine called a multi-constituent analyzer. He credits his education at Blue Hills Regional Technical School for a strong foundation in mechanical engineering.

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Several weeks after his return from space, Tingle reaffirmed that message. “It meant everything,” he noted of his Blue Hills background. “It put the importance of what I was doing in perspective. To me, the downlinks were about reaching out and communicating with students and teachers and letting the world know how important education is to space travel.”

“I had this goal [of becoming an astronaut],” he continued. “I wanted to make it happen. It was important for me to come back and speak to the people who helped me to achieve it. It was really humbling and just a joy to be able to do that. I did something very hard and challenging and showed the rest of the world they can do it, too.”

For Quaglia, the purpose of having the Blue Hills students see Tingle at work in space, in the habitat he loves, was three-fold: practical, motivational and esoteric. After all, here was someone of exalted stature in his profession who once walked

down the hallways they now walk in, who sat in the very same classrooms they presently occupy. “I wanted to provide a forum where students could see a high-level connection between technical education and its application,” Quaglia said. “It was one of those things that was destined to happen. Tingle was eager to do it; we were eager to do it.”

Harkening back to his own childhood when he was mesmerized by the sight of space flights launching on television, he continued, “Those were the things that made you want to dream. People still have a desire to explore. There are still barriers to be broken and technical developments to be made. You still have to have a goal.”

Observing that everyone who graduates from Blue Hills embodies their own particular success story, Quaglia called Tingle “an iconic representation of technical education.” Interacting with him on the ISS was “another expression of what we do at Blue Hills,” he said. “We didn’t talk about Tingle after he landed. We showed him to the students while he was in space” to make the experience so much more meaningful, vivid and real.

As for Quaglia’s personal reaction to Tingle’s downlink with Blue Hills, he said, “This was a highlight of my educational career. It was unique, special — and it will never happen again in my life.”

Tingle was a powerful source of inspiration for Blue Hills senior Marilee Rodriguez and her classmates. “My most memorable moment at Blue Hills,” said Rodriguez, “was when we got to see Scott Tingle in space. He dreamed big and he didn’t give up. He succeeded and was able to become an astronaut. Knowing that Blue Hills helped along the way gives me hope for the future.”

Judy Bass is the communications specialist for Blue Hills Regional Technical School as well as Minuteman High School in Lexington, Massachusetts. Email her at jbass@bluehills.org.

REFERENCE

Jordan, G. & Tingle, S. (2017, Dec. 15). Test pilot to astronaut. *Houston We Have a Podcast*. Podcast retrieved from <https://www.nasa.gov/johnson/HWHAP/test-pilot-to-astronaut>.



PHOTO CREDIT: NASA

NASA astronaut Scott Tingle beams, back on Earth after 168 days in space on his first mission for NASA. He and his crew mates landed in Kazakhstan on June 3, 2018.

Journey to the Red Planet

"I do believe it's realistic that we could be going to Mars someday. It's going to take a lot of work and a few strong international partnerships," Tingle answered each student's question thoughtfully. He explained how it would take nine to 12 months to travel to Mars, to spend two on the surface of the red planet, and 9 to 12 months to get back.

Paraphrasing the famous words astronaut Neil Armstrong spoke when he landed on the moon, Tingle said of a journey to Mars, "It would be a large, large step for mankind." Asked if he would consider going to Mars if doing so were possible, he said, "I would do it in a heartbeat. Hopefully, some people from your school will be on that mission [to Mars]."

Lift Off!

ACTE and NASA HUNCH have teamed up on an exciting contest opportunity for CTE students working out of this world. Learn more in Inside ACTE on page 56.



PHOTO CREDIT: JUDY BASS

NASA astronaut and Blue Hills Regional graduate Scott Tingle with Blue Hills Regional Principal Jill Rossetti at Blue Hills Regional Technical School on November 13, 2018 - exactly nine months to the day after Tingle communicated with the students from space in real time while he was aboard the International Space Station (ISS). On November 13, Tingle spoke to the students about his six-month space mission — his first for NASA — answered their questions, and brought back the replica of the ISS that was made for him by a Blue Hills Regional student, along with a handsome wooden box for it, also made by Blue Hills Regional students, which Tingle had taken with him in space. His signature can be seen written on the underside of the box's lid.

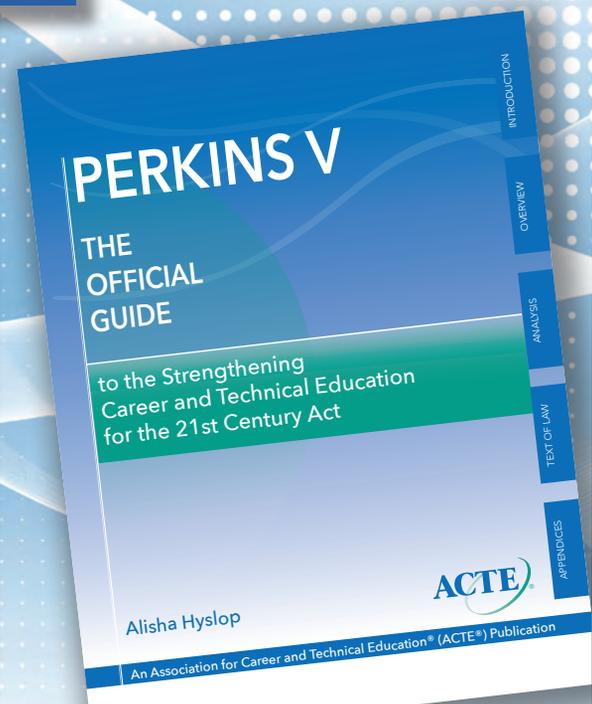
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