

Have Spacesuit Will Travel

2018 Program Summary



In HSWT's tenth year at South River High School, another lucky student tries on the Sokol Spacesuit as part of *Have Spacesuit Will Travel* 2018.

Prepared by Don Thomas

February 7, 2019

Executive Summary

The Heinlein Prize Trust's *Have Spacesuit Will Travel* program was continued in conjunction with Dr. Don Thomas during 2018. A total of 125 students from South River High School participated by reading Heinlein's book and completing a space-themed project. This brings the total number of students participating in the full HSWT program between 2009-2018 to 2,138 students.

The footprint of the *HSWT* program was significantly expanded once again during 2018 to include classroom visits and presentations in two international locations with numerous school visits in Israel and South Africa. In addition, our partnership with Higher Orbits has continued bringing the program to Leominster, MA, Chicago IL, Pataskala, OH, and Leesburg Junction, VA. Overall these presentations and programs involved tens of thousands of students, teachers, and family members.



Israel



South Africa

2018 Program Summary

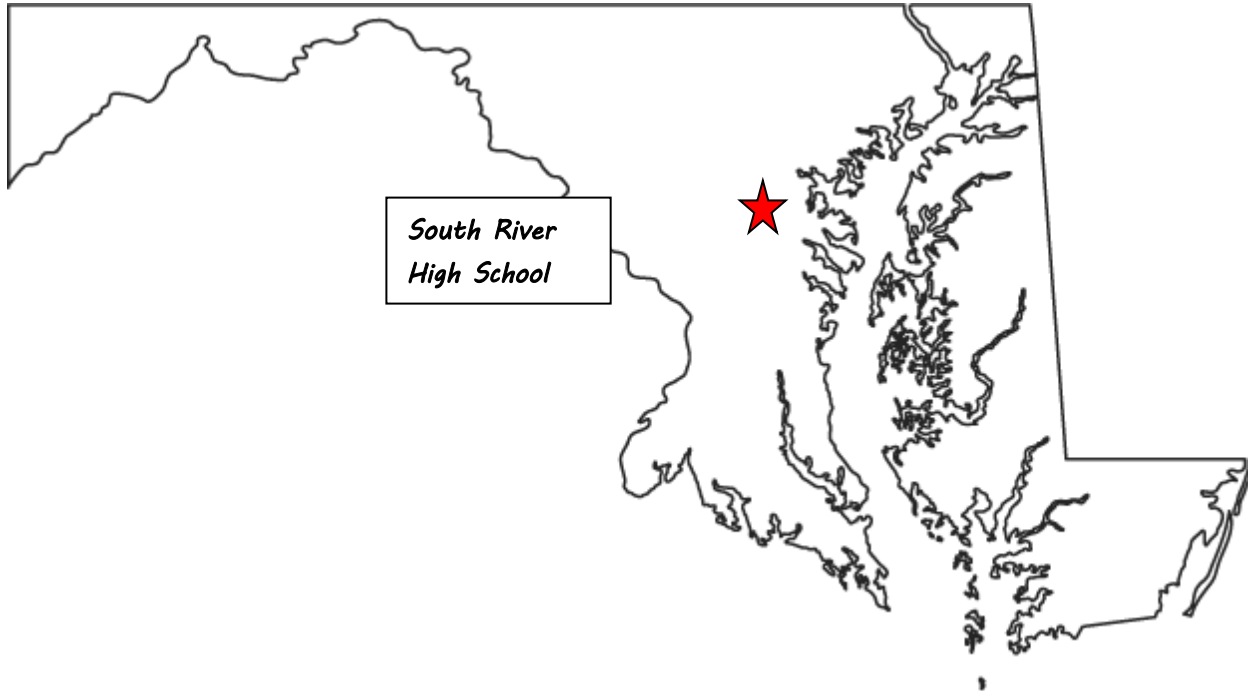
During 2018 the Heinlein Prize Trust together with Dr. Don Thomas presented the full ***Have Spacesuit Will Travel*** program at one public school in Maryland:

South River High School

201 Central Avenue E.

Edgewater, Maryland 21037

(Anne Arundel County Public Schools)



A total of 125 students participated in the program in 2018, reading Robert Heinlein's book ***Have Spacesuit Will Travel*** and completing a moon base design project as part of the program. With the previous 2,013 students that participated in **HSWT** between 2009-2017, the total student participation in the full ***Have Spacesuit Will Travel*** program has grown to 2,138 students. Of special note, this was the tenth straight year that **HSWT** was presented to the students at South River High School!

Since its inaugural year in 2009, **HSWT** has been extremely popular and continues to receive strong support at South River High School. Plans are in place to continue the **HSWT** program once again with their incoming freshman class in the fall 2019. Since the **HSWT** program was initiated with this school in 2009, every one of their STEM students have participated in the program. Once again this year, I continued to have some of the older students that participated in **HSWT** in previous years come up to me to say how much they enjoyed **HSWT**. Their teachers praise the program and continue to tell me it is truly one of the highlights of their STEM program and one they are extremely proud and excited to be a part of.

Once again *Have Spacesuit Will Travel* was a summer reading requirement for the 125 incoming freshmen into the STEM program at South River High School which was coordinated by Jennifer Ward, the ninth grade STEM teacher. Having already read the book over the summer, the students were more than ready for the Sokol suit to arrive at their school.

On October 26 and 29, Dr. Don Thomas did a presentation for the students about spacesuits and things to consider when designing a lunar base, meeting with four different classes of students. For each class, a presentation was given on the background of spacesuits, describing their function, the various components that make up a spacesuit, and explaining the different types of spacesuits. On October 31 and November 1, he returned with the Sokol spacesuit and 2-3 students in each class were given the opportunity to try on the Sokol. At this point the students began their projects associated with **HSWT**.

As in previous years, the project the students were assigned to work on for the **HSWT** program was called **Moon Missions** and involved the students working in groups to design a lunar habitat that could sustain 6 astronauts for a 3 week stay on the moon. Once their designs were completed, the students were required to do a 5-10 minute oral presentation in front of the class. Once again this year I acted as a resource for the students and answered many questions and offered advice on their projects and designs via questions that were emailed to me.







The freshmen STEM students at South River High School outside Annapolis always look forward to the opportunity to try on the Sokol spacesuit and experience for themselves what it is like for our astronauts launching to space. 2018 was the tenth straight year that HSWT was presented at their school.



Student performs some impromptu reach and flexibility tests while inside the spacesuit.

***"The Bolt"* pose as made famous by South African track star Usain Bolt.**





Student poses with Jennifer Ward, the STEM teacher and strong HSWT supporter and advocate at South River High School



"Everything is A-OK inside the Sokol."

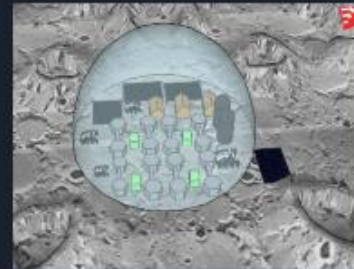
Adeline Albanese (Gravity Control, Power/Electricity)

- Moon bases require energy to function
- Solar panels are an effective and efficient way of gathering energy
- The moon's atmosphere is not as protected as the Earth's so gathering energy will be easier
- The astronauts will live in the low gravity on the moon
- Exercise equipment with tethers so the astronauts can keep their bone strength and muscle density
- The astronauts will have to exercise daily to keep their bodies healthy



Daniel Bachara (Outer Hull, Waste Management)

- Ensures the safety of the astronauts during the trip
- Micrometeorites can damage the technology
- Built the base on a crater under a dome
- Surrounded the dome with moon dust as extra protection from the meteorites
- Systems of vacuums and tubes dispose of waste
- Air directs the waste down the tubes
- Waste can be utilized for generating energy as well



Maya Beckman (Nutrition, Lodging, Climate Control)

- Calcium is very critical to counter bones from losing strength
- Vitamins D and K preserve bone health
- Fiber, protein, and extra calories help maintain weight
- Soy assists in fighting off radiation mutations
- Earplugs, sleeping pills, and hammocks to ensure comfortability and sleep
- Loud noises of the machines working, light from windows, cramped spaces, adrenaline
- Thin and durable fabrics inside suits "space blankets"
- Keeps heat inside the suits
- Vests with lithium batteries and heating coils will be used to keep warm without suits on



Lunar base concepts from one of the student groups at South River High School.

Higher Orbits “Go for Launch” Programs

In 2018 we continued our partnership with **Higher Orbits**, a non-profit organization with the mission of promoting science, technology, engineering and math along with leadership, teamwork, and communications through the use of spaceflight. Run by former NASA JSC flight controller and astronaut trainer Michelle Lucas, they have developed a program called ***Go for Launch*** which allows students to compete in designing an experiment to fly to the International Space Station. During 2018, **HSWT** participated in four of these programs across the country:

February 21-22
May 31-June 2
June 18-21
October 8

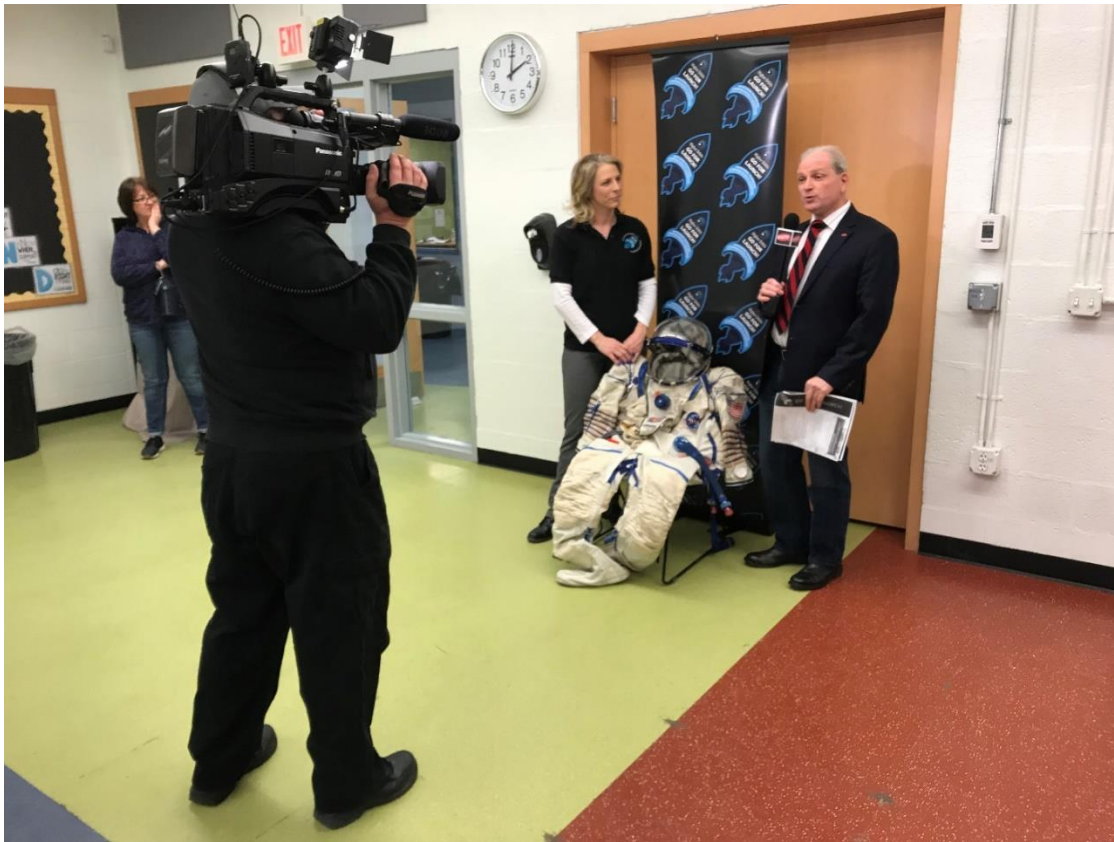
Boys & Girls Club
Pataskala High School
Highland Park High School
Leesburg Junction

Leominster, MA
Pataskala, OH
Highland Park, IL
Leesburg Junction, VA

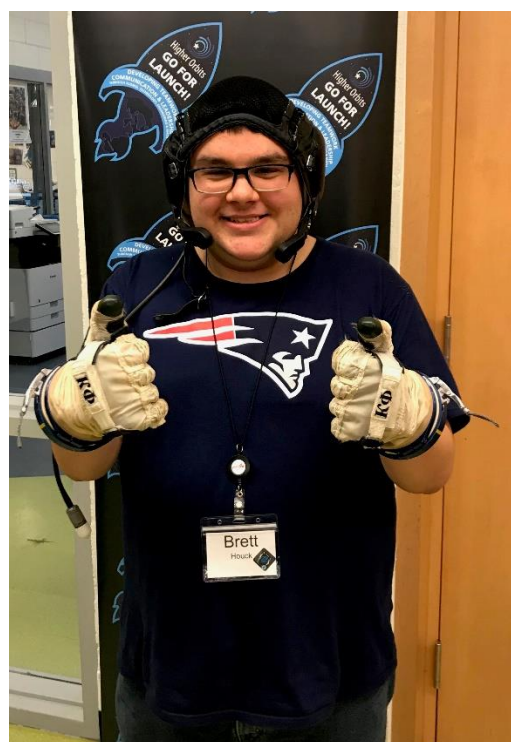


With Michelle Lucas (right) at the “Go for Launch” program at Leesburg Junction, VA on October 8, 2018. Nearly 25 of the participating students were able to try on the Sokol spacesuit that day.

Go for Launch at the Fitchburg-Leominster Boys and Girls Club in Leominster, MA, Feb 21-22



The local TV station in Leominster came out to do an interview featuring the HSWT Sokol spacesuit.





The superintendent of Fitchburg Public Schools stopped by to check out the HSWT Program.



Go for Launch in Leominster, MA



Go for Launch in Leominster, MA



Go for Launch in Pataskala, OH



Go for Launch in Highland Park, IL



Go for Launch in Leesburg Junction, VA





New Partnership: Space Foundation Discovery Center Colorado Springs, CO

A new partnership with the **Space Foundation Discovery Center** in Colorado Springs, Colorado was started in 2018. As part of their nine-week **Summer of Discovery** program which had the theme of **Suit Up!**, HSWT visited the **Discovery Center** on July 13-14. Presentations on spacesuits and living and working in space were done at a special members-only event and for two groups of students and family members during the visit.





One of the students attending the *Suit Up!* program at the Space Foundation Discovery Center got the opportunity to do just that, in Michael Foale's flown spacesuit!

Presentations at Custer County Schools Westcliffe, Colorado

October 11, 2018

Two presentations on “Living and Working in Space” to all K-12 students attending Custer County Schools in Westcliffe, Colorado. In addition, there was a public presentation at the Cliff Lane Community Center that was sponsored by Dark Skies of the Wet Mountain Valley.

Presentation in Clayton, NC

November 12, 2018

At the invitation of Apollo Navy frogman Michael Bennett, I presented to a group of students who were all working on the **Lego robotics competition** that had the theme in 2018 of “**Into Orbit**”. Robotics students from Wendell Middle School, Smithfield Middle School, Neuse Charter School and Johnston County Home Educators joined together for the event where all of the participants were able to try on the Sokol space gloves and other space gear.





With Mike Bennett (right), one of the Navy frogmen who participated in the Apollo 10, 11, and 14 splashdowns and recovery operations. Mike was responsible for organizing the school event in Clayton, NC on November 12.

Las Vegas Science and Technology Festival

May 4-5, 2018

At the invitation of the **Las Vegas Science & Technology Festival** which ran from April 30-May 5, 2018, we had Michael Foale's Sokol spacesuit on display at the festival site where hundreds of people stopped by to examine the suit, try on the communications cap and gloves, and take some pictures. It was a very well-organized event and extremely well attended by mainly families and children. It was very similar to the demographics attending the annual USA Science & Engineering Festival in Washington, D.C.





At an evening public lecture at the Las Vegas Public Library many families and future astronauts attended to learn about living in space and missions to Mars!

Poarch Band of Creek Indians in Atmore, AL

June 6, 2018

At the invitation of the U.S. Space & Rocket Center in Huntsville, AL, I visited the Poarch Band of Creek Indians reservation in Atmore, AL and did two presentations for students on “Living and Working in Space” and showed them the Sokol space gloves and communications cap. I spoke to about 40 students and family members from this Native American Tribe.

Special Event at Goddard Space Flight Center: ISS Expedition 55/56 Hatch Opening Celebration

NASA Astronaut Ricky Arnold was scheduled to launch to the ISS on March 21, 2018, on the Expedition 55/56 mission, and he asked me if I could watch the launch with his parents at the **Goddard Space Flight Center Visitor Center** along with other friends and family members. Unfortunately the weather in Maryland did not cooperate that day. A major snowstorm in the area caused the closure of GSFC. A special “hatch opening” celebration was rescheduled for March 23 and 50-60 of Arnold’s friends and family members from the Maryland area were in attendance. **HSWT** brought a Sokol spacesuit to put on display for all the guests to check out. Many of the students attending were thrilled to try on the Sokol gloves and the communications cap.



Friends and family members of Astronaut Ricky Arnold watch the press conference following the hatch opening shortly after the Soyuz MS-08 docked to the ISS on March 23. HSWT’s Michael Foale Expedition 8 spacesuit was on display for everyone to enjoy.



Friends and family members of Astronaut Ricky Arnold gathered at the NASA GSFC on March 23, 2018 to view the hatch opening once the crew arrived at the ISS to begin the Expedition 55/56 mission.

Increasing the Footprint of HSWT Abroad:

Israel Space Week

January 27- February 1

At the invitation of Avi Blasberger, Director of the **Israeli Space Agency**, Art Dula and I participated in a week-long series of programs for Israeli students, astronomy clubs, and the general public. Presentations were made at the Eretz Israel Museum, the Taybe Space Center, Weizmann Institute, Ort Alon High School, the Nazareth Space Center, Planetanya Planetarium, and the Yarka Public Observatory.

I was also a panelist with fellow astronauts Michael Barrett, Tom Marshburn, and French astronaut Jean Jacques Favier at the **Ilan Ramon International Space Conference** for a session titled *“Space for Everyone”*.

Nearly a dozen media events including TV, radio, newspaper, and magazine were completed..



Israeli students try on both Sokol and Orlan space gloves during Israeli Space Week activities.



Before a presentation on “Living and Working in Space” by Astronaut Don Thomas, students try on the Sokol and Orlan space gloves provided by the Heinlein Prize Trust as part of the *Have Spacesuit Will Travel* program.



Tel Aviv, February 18th, 2018

Donald A. Thomas (Ph.D.)
NASA ASTRONAUT (FORMER)
dathomas65@comcast.net

Dear Don, Dear Friend,

The Israel Space Agency was honored to have you as our guest, and would like to thank you for participating at the Israel Space Week's events for the second time.

Your consecutive participation at our event, and the active role you took throughout the various activities of the Israel Space Week has significantly contributed to its success, and was highly appreciated. Your contribution has provided an outstanding opportunity for discussions and creating direct interactions with different Israeli communities and youth.

We hope that you will cherish your visit in Israel, and that your experiences across our country enabled you to familiarize with Israeli youth, which were excited to hear your presentation.

We would like to inform you that we have taken into consideration the remarks of other astronauts, and we will create a more convenient agenda for next year's event. We hope to host your wife next year and we will be most pleased to cover her accommodation expenses as well.

I wish to thank you personally, again, for agreeing to join us for the second consecutive year. Your support of our event is crucial and beneficial to the long-lasting cooperation with NASA and we hope to host you again at the 2019 Israel Space Week and the Ilan Ramon International Space Conference.

Warm Regards,

Avi Blasberger
Director, Israel Space Agency

cc. Mr. Peretz Vazan, Director General, Ministry of Science and Technology

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Thank you letter from Israeli Space Agency for bringing the HSWT program to Israel for Israeli Space Week 2018.

יום רביעי | ט"ו בשבט תשע"ח | 31.1.2018

מגזין

מעריב

דניאל אסייג
מגיע ל-MTV
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10

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למלא את החלל

האסטרונאוט דון תומאס, שהיה אמור להיות על המעבורת קולומביה שהתרסקה בחזרתה לכדור הארץ, מבקר בישראל וחוזר אל רגעי האסון הנורא, מדבר על ההיכרות הקצרה עם אילן רמון ועל החוויות מארבע טיסותיו לחלל, ומצטער רק על כך שלא הגיע למאדים

חיים איסרוביץ | 04

סיפורי בדים: מעץ הערמונים של אנה פרנק ועד העץ מגוש קטיף שנשתל מחדש • אילנה שטוטלנד | 06
+ קוראים בהגדה, גם בחג האילנות • כרמית ספיר ויץ | 08



Example of media coverage during Israeli Space Week visit highlighting the theme of Have Spacesuit Will Travel.

South Africa – Cape Town and the Garden Route

Living Maths *Space Tour* 2018

September 16-27

At the invitation of the STEM-based non-profit **Living Maths** based at the **Cape Town Science Center** and headed up by Steve Sherman, I visited with students from 27 South African schools including ones in Cape Town, West Stellenbosch, Mossel Bay, George, Knysna, Oster Bay, Plettenburg, Port Elizabeth, and Grahamstown as part of their **Space Tour 2018**. The total attendance at these presentations was 12,800. Eighteen of the schools involving 7,700 students were from disadvantaged schools in the black townships. It was an amazing opportunity to take **HSWT** to some of these very poor parts of South Africa. It is clear from the photos that it was a special opportunity for these students to learn about space and to try on the Sokol space gloves and communications cap!



One of the many township school visits in South Africa during Living Maths Space Tour 2018.





















Students from Nombulelo High School, located in the township outside of Grahamstown in the Eastern Cape, waited patiently for the opportunity to try on the Sokol space gloves.

Summary of 2018 Activities

Once again South River High School in Edgewater, Maryland, participated in the full ***Have Spacesuit Will Travel*** program in 2018 involving a total of 125 students. Together with those that participated from 2009-2016, **a total of 2,158 students have participated in HSWT to date.**

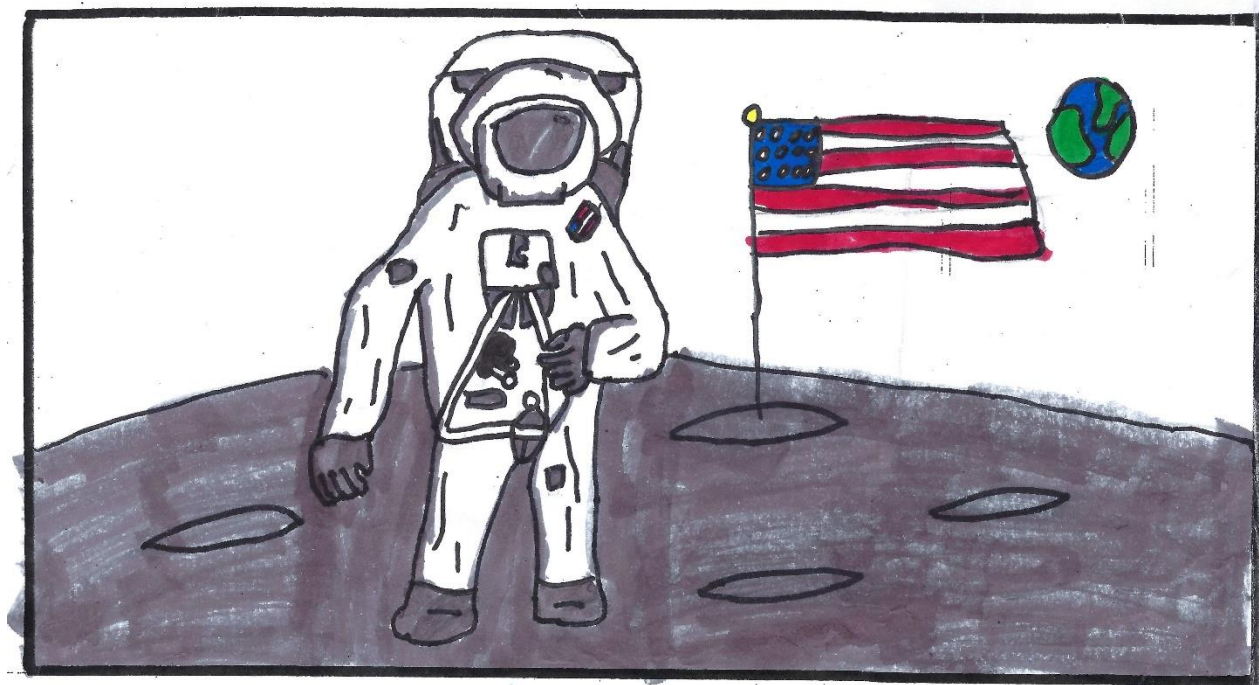
The excitement that the ***Have Spacesuit Will Travel*** program generates with the students is difficult to put into words but hopefully some of that excitement has been captured in the pictures presented in this report. In previous years there was a trend for the students trying on the Sokol Spacesuit to strike the now famous “dab” pose made famous by NFL quarterback Cam Newton. This year one of the students trying on the suit opted for “The Bolt” as perfected by South African Olympic sprinter Usain Bolt. And for the first time ever, A student in Leesburg Junction, VA performed the “Floss” dance move. Putting on the spacesuit usually inspires the students to get out of their normal comfort zones and try something new. Having a camera ready to capture the moment encourages them on.

Besides being a lot of fun, the **HSWT** experience exposes the students to new technologies that are used in both spacesuits and spacecrafts, and provides them with an opportunity to look into the future and envision the space travel that may be possible within their lifetimes. The program also lets the students develop more of their creative talents in designing a lunar base. Doing presentations in front of their classmates, teacher, and a visiting astronaut are valuable skills that they will surely use in the future in whatever career field they enter.

Recommendations and Future Plans:

Expanding the Footprint of HSWT

The **HSWT** program continued working with previous partners **Higher Orbits “Go for Launch”** program here at home and **Living Maths** in South Africa. These programs were very well received with the major draw being the Sokol spacesuit. In 2018 a new partner was added, the **Space Foundation Discovery Center** in Colorado Springs. I recommend continuing efforts in the development of these new partnerships to expand **HSWT’s** outreach across the country and around the world whenever opportunities present themselves.



Acknowledgements

I would like to thank **The Heinlein Prize Trust** for making the Sokol spacesuit available, and in particular Art Dula, Buckner Hightower, and Anat Friedman for their leadership, support, and active involvement in the **HSWT** program. The ***Have Spacesuit Will Travel*** program helps provide a unique and invaluable learning experience for many students, some of which may become our next generation of explorers and commercial space advocates.

Clearly the HSWT program has shown strong international appeal!





Dear Dr. Don Thomas,

I loved your presentation so much! I told all my family that I got to meet a astronaut and they thought it was so cool. You showed me that nomatter what always follow your dream. Now I wanna travel to Mars and be just like you! You're the best astronaut out there.

Your friend,
Avery ♡