

# ***Have Spacesuit Will Travel***

## **2014 Program Summary**



**Ninth grade student at South River High School in Edgewater, Maryland, tries on the Sokol spacesuit after reading *Have Spacesuit Will Travel* this past summer.**

**Prepared by Don Thomas**

**March 1, 2015**

# Executive Summary

The Heinlein Prize Trust's *Have Spacesuit Will Travel* program was continued in conjunction with Dr. Don Thomas and Towson University during 2014. A total of 265 students from three area schools 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 2009-2014 to 1,500 students.

The footprint of the *HSWT* program was significantly expanded once again during 2014 to include classroom visits and presentations at 11 additional schools within Maryland as well as at schools in New Jersey, West Virginia, and Washington, D.C. HSWT also visited three science-based summer camps where the Sokol spacesuit was on display for the students. Overall these presentations and programs involved over 1,455 students and family members.

Of special note, HSWT also participated in the National Aviation Day celebration held at the Wright Brothers National Memorial at Kill Devil Hills, N.C. on August 19, 2014 where the Sokol spacesuit was on display for everyone to enjoy. Additionally a special Saturday Morning Science program titled "Designing Spacesuits" was held at Towson University in conjunction with ILC Dover on October 11, 2014.



# ***Have Spacesuit Will Travel***

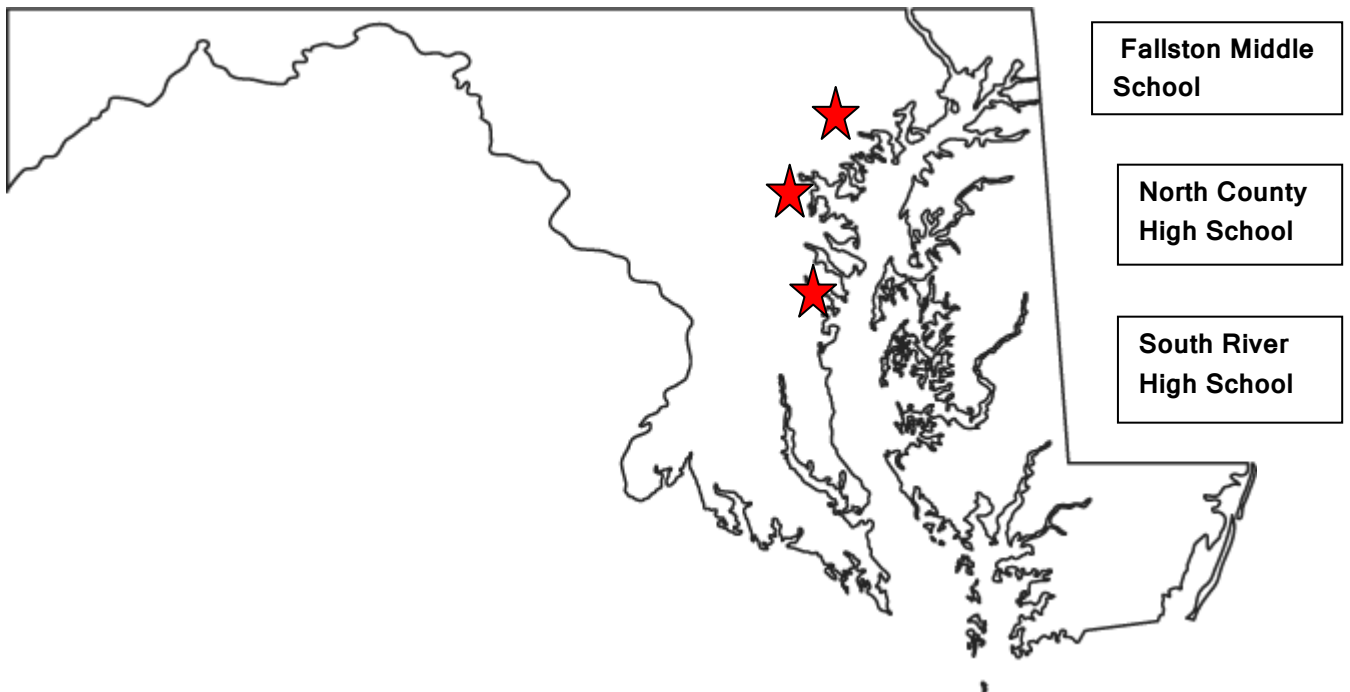
## 2014 Program Summary

During 2014 the Heinlein Prize Trust together with Dr. Don Thomas at Towson University presented the full ***Have Spacesuit Will Travel*** program at three different public schools in Maryland. These schools included:

**Fallston Middle School** (Harford County Public Schools)  
2303 Carrs Mill Rd.  
Fallston, Maryland 21047

**North County High School** (Anne Arundel County Public Schools)  
10 1<sup>st</sup> Avenue E.  
Glen Burnie, Maryland 21061

**South River High School** (Anne Arundel County Public Schools)  
201 Central Avenue E.  
Edgewater, Maryland 21037





North County High School and South River High School participated in the **HSWT** program previously in 2009, 2010, 2011, 2012, and 2013, and continue to be strong advocates for the program. Both of these schools are STEM (Science, Technology, Engineering, and Mathematics) magnet schools with rigorous science and math programs and curriculum designed to attract the best students into STEM and to prepare them for college entry and technical careers in the future.

In 2014 the ***Have Spacesuit Will Travel*** program was also presented at Fallston Middle School which has participated in the program previously but this year was done under the leadership of another sixth grade science teacher, Andy McMullin.

A total of 265 students participated in the program from these three schools in 2014, reading Robert Heinlein's book ***Have Spacesuit Will Travel*** and completing various technology development and art projects as part of the program. With the previous 1,235 students that participated in **HSWT** between 2009- 2013, the total student participation in the full ***Have Spacesuit Will Travel*** program has grown to 1,500 students.

Since its inaugural year in 2009, **HSWT** has been extremely popular and continues to receive strong support at both North County and South River High Schools. Plans are in place to continue the HSWT program at both schools with their incoming freshman class in the fall 2015. Since the **HSWT** program was initiated with these two schools in 2009, every one of their STEM student has 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 about.

***"We absolutely would be very excited for you to continue the HSWT program for the next school year, continuing as long as you are willing to come. Your presentation is one of the more engaging experiences our 9<sup>th</sup> grade students participate in."***

**Mr. Trekker Williams  
STEM Department Chair  
North County High School**



A wall-sized display of their signature STEM programs at South River High School prominently features *Have Spacesuit Will Travel* as one of their project based learning activities.

## HSWT at Fallston Middle School      Fallston, MD

In 2014 we continued the collaboration with Fallston Middle School where Ms. Elizabeth Blackwell, the participating sixth grade science teacher and strong **HSWT** advocate, recruited another teacher, Mr. Andy McMullin, to help oversee the project.

The first event this year was a school visit by Dr. Don Thomas on April 29. During his visit Dr. Thomas gave three presentations on living and working in space to all classes of the Fallston Middle School sixth grade which involved 165 students. Peggy Whitson's Sokol spacesuit was also put on display for the students to examine.

Fifteen of the sixth-grade students then signed up to participate in an after-school book club project. After reading *Have Spacesuit Will Travel*, all of the students completed projects related to spacesuits. One design featured adding "Google Glass" technology to the helmet while another incorporated GPS into the spacesuit so the astronaut could never get lost on whatever planet they were exploring. Yet another design called "Astronet" featured a built in computer that could be projected inside the helmet.

After completing their projects, on May 29, 2014, I visited their school to review their work and allowed a few of the students to try on the Sokol spacesuit. Each of the students presented their work and we talked about some of their ideas. Some parents and grandparents attended as well as they didn't want to miss the excitement of seeing their child in the Sokol spacesuit!





**The 2014 Have Spacesuit Will Travel Team from Fallston Middle School including teachers Andy McMullin (far left) and Liz Blackwell (far right).**







Fallston Middle School sixth grader Gabe Bruno's spacesuit design project for Have Spacesuit Will Travel.



Many of the students enjoyed trying on the Sokol gloves and the communications cap at the project review.





The top three winners were given the opportunity to try on the Heinlein Prize Trust Sokol spacesuit which was a big hit!





Many of the parents and other family members attended the HSWT project review and award ceremony at Fallston Middle School on May 29, 2014



## HSWT at South River High School      Edgewater, MD

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 Hillary Catan, the STEM program coordinator, and Jasmine Coleman, 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 14, 15, 16, and 20, Dr. Don Thomas brought the Sokol suit and met 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. Then 3-4 of the students in each class were given the opportunity to try on the Sokol. At this point the students began their projects associated with **HSWT**.

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. 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.





**Ninth grade teacher from South River High School, Ms. Jasmine Coleman, poses with one of her students trying on the Sokol spacesuit during the initial HSWT visits to their school on October 7-10, 2013.**





Students from South River High School try on the Sokol spacesuit during the initial HSWT visits to their school on October 7-10, 2013.

## HSWT at North County High School      Glen Burnie, MD

Once again this year the **HSWT** student projects were associated with their freshman STEM art class led by Mr. Bernstein. After seeing the presentation on spacesuits and having the opportunity to try on the Sokol spacesuit on September 30 and October 1, the students researched and designed spacesuits with a particular focus on one aspect of a spacesuit's characteristics (Comfort, protection, complexity, etc.). The classes also spent time discussing various NASA missions and scientific advances that have come from the space program.



Don Thomas starts the suit-up process with one of the students at North County High School.







Ninth grade student at North County High School tries on the Sokol spacesuit.



## **2014 Special Event:**

### **National Aviation Day at the Wright Brothers National Memorial**

On August 18, 2014 HSWT was invited to participate in the National Aviation Day celebration held at the Wright Brothers National Memorial at Kill Devil Hills, North Carolina, on the anniversary of Orville Wright's birthday. Following a program on living and working in space, the Sokol spacesuit was put on display for over 200 visitors.



**Sokol spacesuit with Wright Flyer replica at the Wright Brothers National Memorial at Kill Devil Hills, North Carolina.**

## 2014 Special Event:

### Saturday Morning Science at Towson University

In conjunction with Towson University's **Saturday Morning Science** series, a special program titled **"Designing Spacesuits"** was held on Saturday October 11, 2014. The speaker for the program was Linda Hewes from ILC Dover. In addition to Linda, Alex Linsner, an ILC Dover spacesuit glove engineer participated in the program. Together they brought many spacesuit components and models, most of which the students and parents could put their hands on following the program. It was a great opportunity for the audience to get an up-close look at spacesuits, which included Peggy Whitson's Sokol spacesuit. Two back-to-back presentations were made that day to a total audience of nearly 400 people. By all measures it was a great success!



Many young students got to try on various spacesuit components at Towson University's Saturday Morning Science program on "Spacesuits" on October 11, 2014





**Linda Hewes and Alex Linsner from ILC Dover gave an excellent presentation on spacesuits at Towson University's Saturday Morning Science series on October 11, 2014.**





The parents enjoyed examining the spacesuit hardware just as much as the students!



# **Increasing the Footprint of HSWT:**

## **Additional School Visits and Community Events**

In order to increase the footprint of the **HSWT** program and allow for more schools and students to learn about the human body in space and the engineering and technology of spacesuits, the Russian Sokol spacesuit was brought to a wide range of presentations from public lectures to classroom visits to STEM Nights at area schools, from Maryland and Washington, D.C. to New Jersey and West Virginia. **These presentations and appearances involved 4,077 students, parents, and teachers** at the following locations:

- 1/16/14 Presentation on living and working in space and spacesuit on display for 250 students, teachers, and family members at Bel Air Middle School as part of their special Astronomy Night event.**
- 1/27/14 Presentation on living and working in space plus spacesuit display for 150 students, teachers, and staff at the Rock Creek School in Frederick, MD. This is a special public school for high needs students in Frederick County, MD.**
- 2/13/14 Met with 12 ninth grade students from North County High School in Glen Burnie, MD, to review their spacesuit designs, drawings, and ideas that were developed in the fall of 2013 as part of the *Have Spacesuit Will Travel* program.**
- 3/5/14 Two presentations on the human body in space plus spacesuit display for 55 ninth grade students from Glen Burnie High School, MD participating in the Biomedical and Allied Health magnet program.**
- 3/6/14 Two presentations on the human body in space plus spacesuit display for 55 ninth grade students from Glen Burnie High School, MD participating in the Biomedical and Allied Health magnet program.**
- 3/7/14 Two presentations on the human body in space plus spacesuit display for 55 ninth grade students from Glen Burnie High School, MD participating in the Biomedical and Allied Health magnet program.**
- 3/10/14 Two presentations on the human body in space plus spacesuit display for 55 ninth grade students from Glen Burnie High School, MD participating in the Biomedical and Allied Health magnet program.**
- 3/27/14 Presentation on living and working in space with spacesuit display for 100 fifth graders at West Friendship Elementary School in West Friendship, MD as part of their STEM Day celebration.**
- 4/1/14 Follow-on visit for project reviews on the human body in space at Glen Burnie High School, in Glen Burnie, MD.**
- 4/2/14 Follow-on visit for project reviews on the human body in space at Glen Burnie High School, in Glen Burnie, MD.**

- 4/3/14** Follow-on visit for project reviews on the human body in space at Glen Burnie High School, in Glen Burnie, MD.
- 4/4/14** Follow-on visit for project reviews on the human body in space at Glen Burnie High School, in Glen Burnie, MD.
- 4/23/14** Lecture on spacesuits with Sokol spacesuit display for 115 senior citizens participating in a course at the Osher Institute of Lifelong Learning at Towson University.
- 5/15/14** Presentation on living and working in space with spacesuit display for 200 eighth graders at Western Heights Middle School in Hagerstown, Maryland (Washington County). This is a Title 1 school with a significant percentage of the students considered high-risk and from low-income families.
- 5/22/14** Two presentation on living and working in space with spacesuit display for 175 fifth grade students at Jefferson Elementary School in Maplewood, NJ.
- 5/30/14** Two presentations on living and working in space with spacesuit display for 100 sixth grade gifted and talented students at the Howard County Middle School Achievement Expo held at the Applied Physics Laboratory, Laurel, MD.
- 7/15/13** Program on spacesuits and living and working in space to 50 students in grades 7-9 attending the Maryland Summer Center for Space Engineering Robotics program at the Howard B. Owens Science Center in Lantham, MD (located directly across from the NASA Goddard Space Flight Center). This two-week summer camp is run by the Maryland State Department of Education and targets gifted and talented students.



Group picture with summer camp students and the Sokol spacesuit at the Owens Science Center, located across from the NASA Goddard Space Flight Center.



**7/15/13 Program on spacesuits and living and working in space to 20 students in grades 5-8 attending the Rockville Science Center space Science Summer Camp.**



Students attending the Rockville Science Center summer camp on space science were thrilled with the opportunity to examine a Russian Sokol spacesuit up close.

**9/17/14 Program on spacesuits and living and working in space for 95 senior citizens at the Edenwald Retirement Center in Towson, MD.**



Presentation for senior citizens at the Edenwald Retirement Center.

**10/20/14 Presentation on living and working in space along with Sokol spacesuit display for 150 fourth and fifth graders at Maury Elementary School in Washington, D.C.**



*"Thank you so much for your visit to Maury Elementary last week! Your presentation was extraordinary! It's rare to find an individual who is both very accomplished in their field AND a wonderful teacher and engaging speaker. You have it nailed! Thank you for working to inspire our next generation of explorers. I promise that your visits truly make a direct difference in the lives of the students you speak with. I sent you a bunch of pictures from my personal email. My favorite is Sanaa holding up her hand. What isn't captured is what she said. "I'm never going to wash this hand again! It shook the hand of a real astronaut!". Needless to say, your autographed pictures to Sanaa and Samatha were quite a gift:)"*

**Vanessa Ford  
Science Coordinator  
Maury Elementary School  
Washington, D.C.**





**Maury Elementary School, Washington, D.C.**

- 11/3/14 Presentation on living and working in space along with Sokol spacesuit display for 90 fifth grade students at the Talmudical Academy in Pikesville, MD.**
- 11/13/14 Presentation on living and working in space along with Sokol spacesuit display for nearly 900 students, teachers, families, and community members at the Bester Elementary School in Hagerstown, MD as part of their Bester Community celebration.**



**A future Mars explorer checks out the Sokol spacesuit along with Don Thomas at Bester Elementary School in Hagerstown, Maryland, on November 13, 2014.**



The teachers and staff at Bester Elementary were just as excited as the students to have their picture taken with Peggy Whitson's Sokol spacesuit.

- 11/3/14** Presentation on living and working in space along with Sokol spacesuit display for 200 pre-kindergarten through fifth grade students at St. Michael's School in Baltimore, MD.
- 11/21/14** Two presentations on living and working in space along with Sokol spacesuit display for 425 kindergarten through fifth grade students at Norwood Elementary School in Baltimore, MD as part of their Space Day pep rally.
- 12/2/14** Two presentation on exploring space along with Sokol spacesuit display for 150 fifth grade students at Jefferson Elementary School in Maplewood, NJ.
- 12/10/14** Three presentation on living and working in space and with 20 classroom visits along with Sokol spacesuit display for 475 pre-kindergarten through fifth grade students at New Haven Elementary School in New Haven, West Virginia.





**The students were thrilled to see a real Russian Sokol spacesuit up close at New Haven Elementary School, in rural West Virginia.**

## Summary of 2014 Activities

Three public schools in Maryland participated in the full *Have Spacesuit Will Travel* program in 2013 involving a total of 265 students. Together with the students that participated from 2009-2013, **a total of 1,500 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. Just one indication of their enthusiasm was the numerous pictures of themselves and their classmates in the Sokol suit that were posted on their Facebook pages the very next day! Once a student gets into the Sokol spacesuit everyone pulls out their cell phones to snap a few pictures for posting on social media sites. The students really appreciate what a unique opportunity it is for them to get inside a Sokol spacesuit that has actually flown in space!

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 with both their oral presentations and the drawings of the Sokol spacesuit that they do in their art classes. The presentations in front of their classmates, teacher, and an outside visitor are valuable skills that they will surely use in the future in whatever career field they enter.

**Expanding the HSWT Footprint:** During 2014 the footprint of the **HSWT** program was extended considerably by incorporating the Sokol spacesuit to programs and presentations done at area schools. The objective of this plan was to expose even more students to space exploration and what it is like in space beyond those reading *Have Spacesuit Will Travel* and participating in the formal HSWT program.

**While an additional 1,555 students, teachers, and family members had the opportunity to learn more about spacesuits and living in space in 2013, this number was expanded considerably during 2014 with over 4,000 having access to the Sokol spacesuit.** Besides Maryland, programs were conducted in Washington, D.C., New Jersey, North Carolina, and West Virginia in 2014.

## Recommendations and Future Plans

The HSWT program was expanded considerably during 2014 to include school visits, museums, and other community presentations thereby vastly expanding the footprint of the program. **These new opportunities allowed us to bring the HSWT program to a minority inner city school in Washington, D.C. and to a school in a very poor, rural area in West Virginia.** These programs were very well received with the major draw being the Sokol spacesuit. I recommend continuing efforts in this expanded **HSWT** outreach program whenever opportunities present themselves.



## Acknowledgements

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



Two thumbs up for *Have Spacesuit Will Travel* !!

