

# STEM SESSION TRANSCRIPT

OCTOBER, SPACE

## *Dr. Dusty Schroeder*

Hi, I'm Dusty Schroeder, and I'm an Assistant Professor in Geophysics and Electrical Engineering at Stanford. I'm also Chair of the National Earth and Space Science Committee for Science Olympiad.

I've been involved in Science Olympiad for 23 years. First as a competitor on the Solon Middle School and High School Science Olympiad teams, where I competed in Mission Possible, Scrambler, and Astronomy, and then as a National Event Supervisor for Astronomy and Reach for the Stars. I was also a coach at the Liberal Arts & Science Academy in Austin, Texas while I was in grad school. I'm now both the Earth Sciences Chair at the National Science Olympiad and Faculty Supervisor for the Golden Gate Invitational hosted between Stanford & Berkeley.

As the first person in my family to go to college, my involvement in Science Olympiad re-shaped the trajectory of my life, and I'm proud and grateful for everything the organization has done and continues to do for students like me.

It's an immense honor to introduce Donna Young, who has been the lead National Event Supervisor on Astronomy since my first time competing at a National Tournament at the University of Chicago in 1999. In addition to the joy of preparing for, taking, and co-writing Donna's Astronomy tests, I've had the distinct privilege, like so many Science Olympiad alumni, of being mentored by her as a scientist, leader, and educator.

## *Donna Young*

Thanks Dusty! I'm Donna Young, the National Science Olympiad Astronomy Event Supervisor. I became involved with NSO while teaching physics and astronomy in Maine, as a State Director, a State Tournament host site, and coaching a team, and I am currently on the NSO Advisory Committee. In 1999 Astronomy became a C Division event, and I was invited to be the National Event Supervisor. One reason for the invitation was the hands-on astrophysics educational package I wrote for AABSO, which was named by UNESCO in 1997 as the International Educational Product of the Year. Hands-on astrophysics was also one of the reasons I was invited to join the NASA Chandra X-Ray Mission Education and Public Outreach Office in 1998 as their lead educator. The Chandra Mission supported my continuing involvement with National Science Olympiad.

NASA's astrophysics division, Universe of Learning program is a unique partnership focused on informal STEM education via a broad distribution network of informal STEM educators, a perfect match for the National Science Olympiad program. The UOL-NSO-Chandra partnership supports the space science events, and the work of Science Olympiad alumni volunteers, known as the A-Team, dedicated to astronomy. The A-Team has re-energized the space science events by writing tests, supervising competitions, developing resources, presenting at clinics, mentoring teams, and even presenting at prestigious science conferences.

The A-Team personifies the Universe of Learning goals of promoting STEM careers and increasing the scientific literacy about how the universe works. From the physics of dark energy and matter in gravitation to the formation and evolution of galaxies, stars, and planets, and the most fundamental question of all as we search for exoplanets and possible signatures of life - are we alone?

## **Dr. Dusty Schroeder**

It's also a pleasure to introduce Tad Komacek, a postdoctoral fellow at the University of Chicago, and a PhD in planetary science, as well as another former competitor from Harrington High School who went on to be a National Event Supervisor for Astronomy under Donna's guidance.

## **Tad Komacek**

Science Olympiad sparked my career by providing me an outlet for my interests in both geophysics and astrophysics. Participating in the Astronomy, Dynamic Planet, and Remote Sensing events in Science Olympiad as a high school student gave me a brand knowledge base from which to comprehend otherwise complex scientific topics. It also taught me how to learn independently and provided me a broad range of mentorship opportunities. Science Olympiad also really importantly allowed me to make friends that enabled me to both become a better person and a better scientist.

All of the skills that I learned in Science Olympiad are critical to have in my current career as a planetary scientist, and they apply to a really broad range of careers in both STEM and beyond. My experience in Science Olympiad was so rewarding that soon after I graduated high school I decided to volunteer as an Event Supervisor, a role that I have held for the past decade. It has been wonderful to give back to Science Olympiad by supervising the Astronomy event, and I hope that each Science Olympiad competitor will cherish their opportunity to learn and collaborate with their teammates, and to make memories that last a lifetime.

## **Dr. Dusty Schroeder**

Finally, I'd like to introduce David Kanner, an engineer at SpaceX who competed in Egg-O-Naut while in high school. David, can you share with us what your job entails and how Science Olympiad contributed to your career choice?

## **David Kanner**

Hey guys, my name's David Kanner, and I participated in Science Olympiad while I was in high school performing at various different types of events starting from the gravity-powered vehicle, the wooden tower, Egg-O-Naut. Science Olympiad was more of the start of my career than than really leading up to my career because it segued very well into what I'm doing now.

Essentially I was at the time given a rule set, a rubric in which I needed to design something that performed a task according to some performance parameters, and I had to build that thing and out compete the other teams in the event and that's very similar to what I'm doing now. We have contractual requirements. In my case I'm a valve designer so I have contractual requirements regarding how a valve has to perform, and then we have vehicle requirements regarding how much power it can consume, how heavy it has to be, how reliable it has to be, and how much it can leak. Then we go ahead and design those valves, and we test them similar to how I tested the vehicle or the tower or the rocket in my Science Olympiad days.

In the end, the best result was achieved by using your intuition, performing some hand calculations, building as soon as possible and testing over and over and over again until the final result was as good as it could be and that's very much how it works in the real world. We design the valves according to how we think they're going to work, we build them as early as we can, we find out there are some problems here and there, and then we redesign it and test it again until the product meets our specifications. That's exactly what I did in Science Olympiad and that's exactly what I do now and it's been a very similar experience and I think the lessons learned from Science Olympiad are very powerful and applicable to my career.

## **Dr. Dusty Schroeder**

I'll close by saying that Science Olympiad alumni are some of the most inspiring, passionate, and generous scientists and engineers I've met. I'd encourage you to find ways to continue your involvement with Science Olympiad even after you graduate as well.

