



VJAS VOICE

THE VIRGINIA JUNIOR ACADEMY
OF SCIENCE'S QUARTERLY PAPER

Spring 2023 EDITION, ISSUE 4

"EVERYTHING IS
THEORETICALLY
IMPOSSIBLE
UNTIL IT IS
DONE"

**ROBERT
HEINLEIN**

**2023 VJAS VIRTUAL
RESEARCH SYMPOSIUM**
*Serving the World Through
Science*

The College of William & Mary
Williamsburg, VA

Student presentations will
be *fully virtual* and begin on

VJAS STUDENT GOVERNMENT

CO-PRESIDENTS:
HAMZA ARMAN LATEEF
LAASYA KONIDALA

• • •

VICE PRESIDENT:
CHARLOTTE CUNNINGHAM

• • •

SECRETARY:
YASH SAXENA

• • •

EDITORS IN CHIEF:
RANIA LATEEF
JACOB TILLER

• • •

COMMUNICATIONS LIAISON:
NITYA KUMAR



We look forward to the hosting our new and
returning student scientists via a virtual
symposium!

WHAT'S INSIDE?

- Page 2** - Virtual Presentation Tips
- Page 3** - What Are Judges Looking For
- Page 4** - Interview with Dr. LaTanya McDade
- Page 5** - Interview Continued
- Page 6** - Interview Continued
- Page 7** - 100 Years For The Academy

VJAS VOICE

2023 EDITION, ISSUE 4

VJAS 2023 SYMPOSIUM JACOB TILLER

The 82nd VJAS Annual Symposium will be virtual and hosted by the College of William and Mary.

More details can be found here:

<http://vjas.org/2023-symposium.html>

We are also open to recruiting our Readers and Judges.

Please sign up below:

<https://docs.google.com/forms/d/e/1FAIpQLScyEH8spkoRUviXh-3m7NUctcEAstqjuzXSAFwbCgjwcl5Eg/viewform>

VIRTUAL PRESENTATION TIPS JACOB TILLER, CO-EDITOR-IN-CHIEF

As the symposium draws near we hope to provide tips that will help you develop an effective presentation strategy. Firstly, ensure that you have a stable internet connection along with a quiet place free of disruptions to conduct your presentation in. This will help you focus solely on the task of representing your hard work in its best light. As far as presenting itself goes, greet your judge nicely and start into your presentation once prompted. Throughout the presentation, maintain eye contact with the camera, just as you would maintain eye contact with an audience in person. Speak directly and at a consistent pace & volume unless you are intending to emphasize an aspect of your presentation. Ultimately, you will want to stay calm and focus on your project so that you can demonstrate how hard you worked!

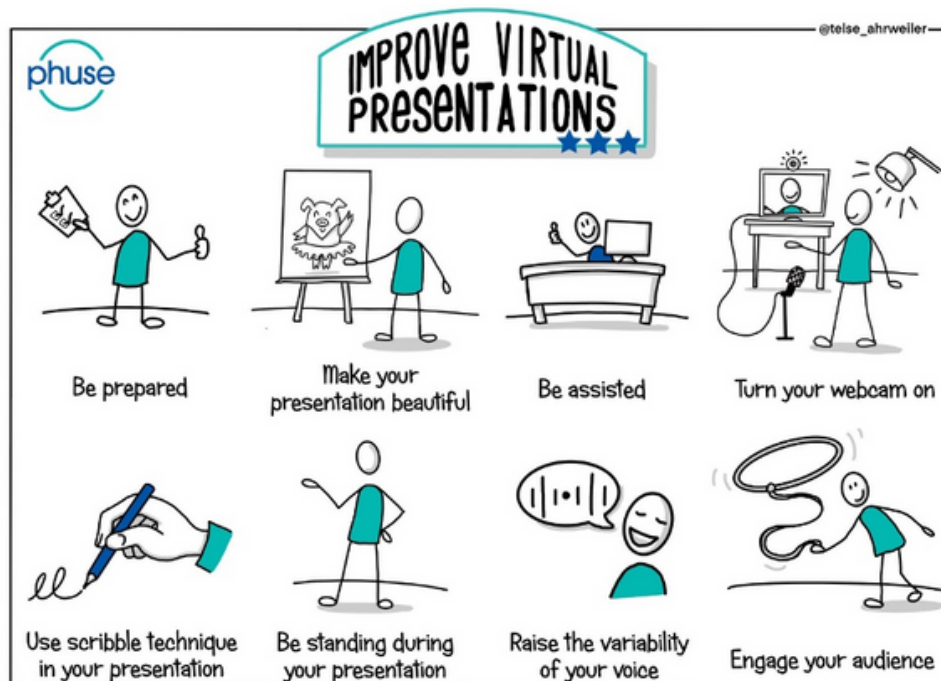


WHAT JUDGES ARE LOOKING FOR?

SRIYUTHA MORISHETTY

As the Symposium nears and as participants begin thinking about their presentations, knowing and understanding a few of the key elements to a good presentation is crucial for success. Judges are looking for confident, knowledgeable, and passionate presenters, who are well-equipped with knowledge about their study and demonstrate clear interest while presenting. Judges also recommend participants to be comfortable with their presentation, not directly reading off slides but rather using their presentations as merely visual aids. A participant's visual aid should be sufficiently large, legible, and attractive, and presentation slides should increase the audience's understanding of the topic.

While presenting, the presenter should engage their audience with suitable volume and pace, clearly demonstrating comfort with the topic. In addition, the presenter should be comfortable with technology, but if a technological complication were to arise, they should be efficient and dedicated in alleviating the error. Finally, the presenter should aim to stay in the time frame with their presentation. Overall, judges are looking for confident presenters who clearly demonstrate interest in their respective subject matters. Presentations should be well-prepared to speak assuredly and to answer any questions about their research. You can do it!



**AN INTERVIEW WITH DR. LATANYA MCDADE,
SUPERINTENDENT OF PRINCE WILLIAM COUNTY
SCHOOLS, VIRGINIA**

RANIA LATEEF, CO-EDITOR IN CHIEF

Rania: Dr. McDade, as you may know, VJAS is a statewide organization of student scientists from middle and high school and it is an opportunity for them to present their research at an annual symposium, at one of Virginia's public universities. As a VJAS officer and a student of Prince William I was so happy to learn about your commitment towards student participation in scientific competition competitions such as VJAS. Specifically, in your strategic plan I noted that by 2025 you wanted PWCS to increase by at least 5% in the number of students taking part in VJAS as well as other regional state and international stem competitions. Why do you think that opportunities such as VJAS are important for students and how can we encourage more students to participate?

Dr. McDade: Well, we already know what the data shows us; if we look at the Department of Labor we are still seeing that STEM fields are outpacing all other occupational careers at a significant speed - almost three times the rate - even for individuals that graduate with a STEM degree but don't go into STEM, they benefit from higher wages simply from having a degree in one of the STEM fields. So there's a lot of post-secondary benefits for students when it comes to STEM.

And one of the things that's incredibly important to me is for students to not only learn science and engage in inquiry-based learning, but also for them to understand research and technical skills that help support critical thinking - which is one of the characteristics in the profile of a graduate from Prince William County public schools. Our profile also boasts characteristics of global collaboration and innovation and being a visionary. So when you think about all of those characteristics, participation in VJAS and science competitions really allow students to bolster those skills. Students must have enduring understanding and in-depth knowledge of concepts in the sciences but if they also pick up the technical skills, that will serve them well regardless of what field they actually go into.

Further, I think one of the big benefits of participating in this VJAS symposium really is an opportunity to engage with professionals in the STEM fields so that they can have opportunities for career exploration which is critically important; a lot of times students really don't know the myriad of different areas that they can go into and what jobs in the STEM fields exist. Especially for women, we're seeing more women in the health fields but less in physical sciences, computer science, math and engineering and a lot of that has to do with not really engaging in career exploration and really understanding the vast nature of STEM.

So that's what's important to me and that's what's going to position our students to be competitive in the global society and to acquire rewarding careers that will lead to economic mobility.

INTERVIEW CONTINUED

RANIA LATEEF, CO-EDITOR IN CHIEF

Rania: Even today we don't see as many girls or underserved minorities in STEM. What are your thoughts on that, especially given that you believe strongly in equity?

Dr. McDade: Well, I think one of the reasons we have included expectations for STEM in our strategic plan and a goal of increasing student participation in science competitions including the VJSA symposium is to remove some of those barriers. I think why we don't see participation is because some schools - particularly schools that are heavily populated with students underrepresented in science competitions- is due to a lack of awareness. They just don't even know about them for probably a host of reasons; making it a priority in our strategic plan communicates an expectation and a standard for excellence across all content areas to include the sciences. In this way schools see the strategic plan and know the specific goals for all schools to contribute to the division reaching the four-year goals for increased academic achievement in all core content areas. So, when you see that 5% increase, then we can advise schools in their continuous improvement plans as to how they are contributing to the division meeting this 5% increase in terms of students taking part in the Virginia Junior Academy of Science program and symposium. So setting that as a goal puts everyone on notice that this is one of the ways that we measure excellence in science in Prince William County and that goes a long way in not just removing barriers but increasing access to opportunities because now schools that didn't even know about it know about it through the strategic plan and then our science department targets specific schools that are populated with underrepresented student groups to participate and provide support and training and mentoring to teachers so that they better understand how to prepare their students to be successful and competitive.

Rania: Let's switch gears to some more fun questions: so, what's your favorite memory of STEM from middle or high school?

Dr. McDade: From middle school and high school my favorite science classes were biology and physics and I think the reason that biology and physics are really enjoyed in middle and in high school is just that sheer opportunity for inquiry based learning and hands-on science and exploration. Especially in high school biology, we just did so much hands-on work and laboratory science. In comparison to elementary school, and even parts of middle school it was a lot more just "sit and get" and reading really technical text that was difficult to understand without any opportunity for application. So the science classes that were the most rewarding fulfilling and stimulating for me were the ones where I've learned content but then I was able to develop enduring understanding by applying that content specifically through project-based learning, through inquiry-based learning, and through laboratory scientific experimentation and that was fun. I also could make connections to the content and the real world and when I do visit the classrooms I want to see students actively engaged in the learning process and building conceptual understanding as opposed to passive engagement and that's one of the reasons that we really focused on science in our strategic plans and push more of that inquiry based learning because I just think about myself as a learner and that was the best way for me to learn. I don't do well just listening to a teacher talk about something. I don't retain information in that way. Yes, I may be able to take copious notes and go back and look at them or memorize something only to pass the test and then lose it once the tests over. But the things that have stuck with me really came from opportunities to engage in discussion and have dialogue with my peers and to create and be innovative in the classroom.

INTERVIEW CONTINUED

RANIA LATEEF, CO-EDITOR IN CHIEF

Rania: I agree. I definitely think it's easier for me to learn well with hands-on activities or project based learning rather than sit and listen to notes. What was it like seeing science education and opportunities evolve from your time to ours?

Dr. McDade: This is actually very motivating and inspiring because I think across the board in public education we do still have some learning environments that look the same way that they did when I was in school right. But where I have seen innovation that excites me. It goes back to this notion of being a global collaborator; it is where I see classrooms that really are 21st century learning models which are steeped in technological advances that are available for students to access learning beyond the classroom walls where students can observe practitioners actually in the field working both nationally and internationally.

Rania: so in closing, what advice do you have for students across Virginia who think about being scientists someday?

Dr. McDade: for one I think for students who are interested in becoming scientists it's important for them to understand that the foundations of writing and research and technical skills are really, really important to their success. You can't want to go into science and not enjoy or want to research - they go hand-in-hand.

I think the other thing is understanding that students who want to go into the sciences have to be very thoughtful about their course sequencing and what they're selecting by way of coursework that will prepare them to go into secondary programs. So you can't be OK with the bare minimum for graduation, you want to take four years of science you want to take four years of math and you also want to make sure that you're taking advanced math and science courses like Advanced Placement courses or International Baccalaureate courses getting up to Calculus and making sure that you're taking really rigorous coursework whether it be through AP or dual enrollment. You want to position yourself in a way that you are prepared for college level coursework that is rigorous and is focused in the STEM fields. That's a thoughtful way that you can approach your career preparation through your schedule and your course selection and even how you push yourself to be able to achieve at a high level.

I think the other thing is recognizing the need to develop a love and understanding for research as well as technical reading and writing skills and continue to hone those skills during their educational career before they leave Prince William County so that they are positioned for success and have the strong foundational background going into postsecondary education.

The other thing is career exploration - if you want to go into the STEM fields you do have to take the time to do research and explore the different careers that are available and take advantage of opportunities both in the school and locally to learn more and connect with career professionals in the field and we have those opportunities here in Prince William County. We have business partnerships, and we now have college and career advisors at every high school. They reach out and work with students and help them plan for their future. So now is the time to sit down and have a meaningful conversation with an adult that could provide career advising.

Rania: On behalf of VJAS I thank you so much for your insightful and thoughtful commentary.



100 YEARS FOR THE ACADEMY SRIYUTHA MORISHETTY

The Virginia Academy of Science will be celebrating 100 years this 2023. Having been established in 1923, the Virginia Academy of Science is the fifth largest state, region, or city academy of science in the U.S. The Academy's Centennial reminisces on the Academy's reasons for establishment: to promote the civic, academic, agricultural, industrial, and commercial welfare of the people of Virginia. In 1941, the Junior Academy of Science was created. Providing thousands of dollars towards science research and educating millions of students in science and mathematics, the Academy has made an immense impact on students, educators, and participants all across Virginia. Advising governors, legislators, and citizens about the invaluable nature of science research, the Academy has fostered a group of community-oriented citizens.

Among its many accomplishments, the Academy helped create the Science Museum of Virginia in 1970, which continues to advance the importance of science education today. Over the years, the Junior Academy has impacted countless students and has aided them in achieving their career aspirations, whether it includes science or not. As the Academy celebrates its centennial, it is important to acknowledge the vast impact the organization has had on its community, and to continue to adhere to the Academy's founding principles of education, community, and advancement.

