



# VJAS VOICE

THE VIRGINIA JUNIOR ACADEMY  
OF SCIENCE'S QUARTERLY PAPER

Winter 2022 EDITION, ISSUE 2

"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!

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## 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>

[- 3m7NUctcEASTqjuzXSAFwbCgjwclL5Eg/viewform](https://docs.google.com/forms/d/e/1FAIpQLScyEH8spkoRUviXh/_3m7NUctcEASTqjuzXSAFwbCgjwclL5Eg/viewform)

## BRAINSTORM BETTER

JACOB TILLER, CO-EDITOR-IN-CHIEF

As our VJAS students are beginning to finish their project brainstorming, we hope that for any still seeking to find inspiration the following tips on wrapping up the brainstorming stage will be helpful. We recognize that the task of brainstorming an entire project idea can seem daunting, but try and think of the process as simply needing to develop a series of ideas. After identifying an area you are passionate about, consider how to quantitatively evaluate an aspect of this area. Think of how you can measure things related to this subject in an organized way. Be sure that you have selected something that can be measured quantitatively rather than qualitatively. This refers to a project that would be based on evaluating numerical results rather than overall, general observations. If you still find yourself stuck, try and make a mind map like the one depicted below. Best of luck! Next, think about what supplies you will need and how you will conduct your research. Will you source supplies from your school or a local organization? Will you need to purchase supplies, and if so, what will your budget be? Be sure to set a realistic goal for your project in regards to the supplies available to you.



## OFFICER OFFERS PERSPECTIVE

### INTERVIEW WITH VJAS COMMUNICATIONS LIAISON NITYA KUMAR

#### Q) WHAT STEPS DO YOU TAKE WHEN BRAINSTORMING PROJECT IDEAS?

WHEN BRAINSTORMING PROJECT IDEAS, I ALWAYS LIKE TO THINK ABOUT SCIENTIFIC ISSUES WHICH INTEREST ME. I USUALLY JUST BRAIN-DUMP ON THE PAGE I AM BRAINSTORMING ON. THEN, I CHOOSE A COUPLE OF IDEAS THAT STAND OUT TO ME AND I START FILTERING THEM OUT- IN THE SENSE I START TO NARROW THE IDEA AND HYPER-FOCUS IT. I USUALLY DON'T WANT IT TO BE TOO BROAD BECAUSE RESEARCH IS BETTER WHEN HYPER FOCUSED. AFTER DOING THIS, I HAVE MY IDEA.

#### Q) HOW DO YOU GATHER YOUR SUPPLIES?

I USUALLY JUST GO ONLINE AND ORDER ITEMS FROM WEBSITES OR TRY TO LOOK AROUND MY HOUSE FOR SOME ITEMS I COULD USE. RESEARCHING SUPPLIES BEFOREHAND AND THOROUGHLY UNDERSTANDING YOUR PROJECT AND NEEDS IN ESSENTIAL TO THIS STEP.



#### Q) HOW DO YOU ADJUST TO ISSUES THAT ARISE WHILE YOU ARE RESEARCHING?

I JUST ALWAYS TRY TO KEEP AN OPEN MIND AND REALIZE THAT NOTHING IS PERFECT. THERE ARE CERTAIN THINGS THAT ARE JUST NOT IN MY CONTROL, AND WHEN SUCH PROBLEMS ARISE, I KEEP A CLEAR HEAD AND KEEP ON MOVING. I TWEAK MY PROJECT OR FIND SOME WAY TO GO ABOUT THE PROBLEM. SCIENCE IS A SUBJECT WHERE THERE WILL ALWAYS BE ISSUES, AND TRYING TO SOLVE THEM IS THE FUN OF SCIENCE.

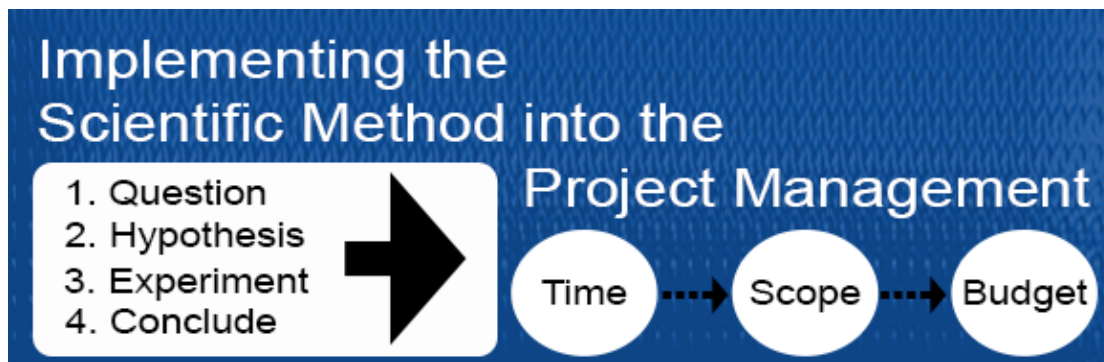
Nitya Kumar is a junior at Douglas Freeman high school and she is the social media and communications liaison for VJAS. She is very excited to be able to serve as an officer this year! She has been a part of VJAS and has been conducting scientific research since seventh grade.

## WORKING THROUGH ISSUES JACOB TILLER, CO-EDITOR IN CHIEF

We want data collection to be as streamlined as possible for our VJAS students. However, it is inevitable that each Junior Researcher will encounter certain issues along the way that they will have to think through critically to move past. To help you all work through some common issues and avoid many struggles outright, please see the following pointers.

Prior to starting data collection, you should try and predict what issues may arise throughout the course of your project and how you will address them. Throughout the project, you can look back on these notes when issues arise and see if you have already thought through how to move past them. One common issue is that students attempt to test things or collect data without protecting against “confounding variables,” or things that make your results inconsistent. To avoid these, try and keep all testing conditions the same aside from your independent variable.

As your project progresses, be sure to collect data and make copious notes so that you can reference them while drafting your paper. Ultimately, be sure to think thoroughly through your project before starting and do not be afraid to ask for help from a teacher or trusted professional after starting. Take a look at the graphic below for a visual aid of this process.



[HTTPS://WWW.WLL.COM/SCIENTIFIC-METHOD-PROJECT-MANAGEMENT/](https://www.wll.com/scientific-method-project-management/)

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## INTERVIEW WITH TEACHER AND VJAS MENTOR, MRS. MICHELE CHAMOT JACOB TILLER

### **1. How do you help your students brainstorm projects?**

Each student selects their own topic based upon their interests - and this can certainly be tricky since they often have a lot of interests. During research orientation days, we provide the students with a lot of previous research titles, abstracts, and posters, as well as websites and materials about specific organisms, techniques, and concepts. This allows them to look through a wide variety of potential topic areas and find what sorts of things seem interesting to them. We tell the students to follow their interests - what questions come to mind, what things spark a "well that's neat" kind of moment. Those are the directions they should dive a little more into and see where their curiosity takes them.



### **2. How do you help students get started after they have solidified their project concepts?**

There are a lot of one-on-one meetings where I discuss with the students what their ideas are, and help them develop a solid research question, then look at ways they could go about designing and conducting an experiment. This relies a lot on looking at previous research by searching for published research articles. I meet with the students several times in the first few weeks to help them get a basic experimental design based upon their research question. Once an experimental design is in place, it is onto planning what equipment, materials, and techniques they need in order to collect data - they have to submit a formal request for purchase of items that they need for their projects. They also have to design a timeline for themselves so they have a guide and stay on track. With those essential project management pieces, they can be successful in implementing their research designs.

### **MRS. CHAMOT BIOGRAPHY-**

MRS. CHAMOT IS A RESEARCH MENTOR AT THE CENTRAL VIRGINIA GOVERNOR'S SCHOOL HELPING JUNIORS TO DEVELOP THEIR OWN INDEPENDENT PAPERS/PROJECTS IN A LAB SETTING. SHE ALSO TEACHES COLLEGE ANATOMY AND PHYSIOLOGY TO SENIORS AT THE GOVERNOR'S SCHOOL.

### STEMINAR RECAP AND REVIEW

YASH SAXENA, SECRETARY

On December 3<sup>rd</sup>, the Virginia Junior Academy of Science (VJAS) held its first STEMinar of the year with the VJAS student officers as panelists with Mrs. Susan Booth, the director of the VJAS, Dr. Tara Lateef, a Pediatric Neurosurgeon at the National Institute of Health, and Mrs. Debra Peterman, the Middle School Science Teacher of the Year in 2021 and Physical Science teacher at Benton Middle School.

During the STEMinar, VJAS Vice-President Charlotte Cunningham talked about how generate a research idea and how to complete a project and afterwards a Q&A session was held with our panelists. Here are some questions that we frequently get from students and teachers interested in conducting research:

#### **How do I choose a research topic?**

A good research topic is something that you, the researcher, is interested in that advances science

and benefits something, like people, animals, or the environment. You can get a lot of inspiration from looking at prior projects and existing research as well as by talking to your science teacher and looking at things that you can improve in your community.

#### **Do you have any tips for doing a research project?**

Work hard and never give up! Throughout the research process, there may be times when you run into an unexpected situation, where you have to innovate to overcome a problem or where you have to do a repetitive process in order to proceed. If this happens, don't feel discouraged and don't be afraid to ask a teacher or parent for help.

#### **How do I find a mentor that I can work with outside of school?**

Determine what kind of research you are interested in. Then, search for professors at local universities who conduct research in the field that you are interested. After that, 'cold-email' professors asking if they can be your mentor in conducting research. Cold-emailing professors may take many attempts before you can find someone interested in being your mentor, but do not give up.

**A full recording of the STEMinar can be found at the link below:**

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





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## VJAS MENTORSHIP PROGRAM REMINDER

The Virginia Academy of Science (VAS) is excited to offer its mentorship program once again for K-12 classrooms across Virginia to pair scientists with K-12 classes to perform long-term science projects.

They are looking to recruit both mentors (grad students, postdocs, instructors, scientists, etc.) and high school teachers who would like their students to participate in a virtually-driven long-term research project.

They have partnered with the Virginia Junior Academy of Science in this endeavor to encourage participation in our 2023 Annual Research Symposium and to give students the juried research experience necessary to earn the Virginia Department of Education's new Seal for Excellence in Science and the Environment on their diploma.

Mentorships may be in-person, virtual, or hybrid, and the VAS would like to offer middle and high school instructors the opportunity to either do a project of local interest or to participate in a "Citizen Science" type initiative in which their class will work with others across the Commonwealth and (sometimes) the nation in the collection and analysis of data.

This model is more inclusive since it should allow a greater level of participation with geography and distance not being limiting factors.

Even if you signed up last year, to avoid unwanted emails to those who do not wish to participate this year, Dr. Wolyniak, the program coordinator would like to you to sign up using the appropriate link below.

If you are interested in serving as a mentor in this project, please fill out the form found at:

<https://secure4.hsc.edu/forms/view.php?id=117158>

[\[nam\]1.safelinks.protection.outlook.com](mailto:[nam]1.safelinks.protection.outlook.com)

If you are a high school teacher with an interest in having a mentor work with your class, please fill out the form found at:

<https://secure4.hsc.edu/forms/view.php?id=116443>

[\[nam\]1.safelinks.protection.outlook.com](mailto:[nam]1.safelinks.protection.outlook.com)

Please do not hesitate to contact Dr. Mike Wolniak (mwolyniak@hsc.edu) with any questions you may have, and please pass this announcement along to any other contacts you think may wish to participate.

Thank you for your consideration of this opportunity!

## **VACCINE EDUCATION PROJECT- THATS A WRAP!** **RANIA LATEEF, CO-EDITOR IN CHIEF**

We are excited to announce the culmination of our Vaccine Education study recruitment efforts. This study was conducted as a collaborative effort between Georgetown University and Hampden-Sydney College and supported by the Virginia Academy of Science. Thanks to the active efforts of junior officers, and the participation of several junior members of VJAS, we were able to reach our subject recruitment goals. Now we look forward to analyzing our data and publishing results soon so that we can further efforts of vaccine science educators.

## **CONGRATULATIONS TO OUR VJAS CHAIR ON BECOMING AN AAAS FELLOW** **RANIA LATEEF, CO-EDITOR IN CHIEF**

The American Association for the Advancement of Science (AAAS) annually elects select members to its fellowship; such members have demonstrated efforts “on behalf of the advancement of science or its applications in service to society have distinguished them among their peers and colleagues”. We are proud to acknowledge our very own Chairman Se Jeong of the Junior Academy who was elected as an AAAS fellow in 2021. Mr. Jeon’s leadership and commitment to science is evident to all of us junior members. At each VJAS symposium he is faithfully presiding over the inaugural ceremonies and keynote speeches, encouraging the young scientists, and he enthusiastically joins in the excitement of the awards ceremony. As someone who has himself been a junior member, then volunteer judge, and finally Board member and chair, Mr. Jeong is a true inspiration to us. We congratulate him and wish him well.

