VASE ANNUAL REPORT FOR 2020-21

This was a most unusual year for VASE as it conformed to necessary restrictions brought about by the COVID-19 pandemic. COVID-19 did not deter the Academy from hosting its Fall Annual Meeting, however, which took place on October 26th, 2020 via Zoom. The meeting was host to 119 virtual attendees, including members of VASE, new inductees and their guests, students from Vermont Colleges and Universities, and members of the general public. VASE President Grace Spatafora started the meeting with some welcoming remarks before acknowledging VASE's 7 new inductees; Michael Metz (Materials Scientist), Kyle Clark (CEO of Beta Technologies), Greg George (Mechanical Engineer), Frances Carr (UVM Professor of Pharmacology), Richard Page (Dean of UVM's Larner College of Medicine), Christopher Francklyn (UVM Professor of Biochemistry), and Bryan Ballif (UVM Professor of Biology). She then introduced keynote speaker Dr. Mark Levine, Director of the Vermont Department of Health, who delivered a presentation entitled "The Application (and Misapplication) of Science, Epidemiologic Data, Public Health Practices and Health Policy during the COVID-19 Pandemic". The presentation was timely, informative, and followed by a vigorous question and answer session that was fielded via the chat and moderated by VASE Board members.

VASE typically honors its Outstanding Science Teacher of the Year (TOY) awardees at the Fall meeting as well, but this year was an exception. When the pandemic forced Vermont school closures in mid-March 2020 and teachers were required to transition their lesson plans to an online learning format, VASE decided not to proceed with its 2020 call for TOY nominations.   We are happy to announce, however, that as more and more people become vaccinated and we anticipate the reopening of Vermont by July 4th, VASE has decided to reinstate its call for K-8 and 9-12 TOY nominees in 2021; we look forward to honoring these TOY awardees at the 2021 annual Fall meeting that we plan to host in-person for the first time since 2019.

In order to fulfill its outreach mission despite restrictions from COVID, VASE is proud to have reallocated funds it was unable to spend on an in-person Fall meeting in 2020 to supplementing VASE's Small Equipment and HOST Grant programs. These redirected funds allowed VASE to call for Small Equipment and HOST applications in both the fall of 2020 and the spring of 2021, which is something we had never done before.   The response to these two rounds of grant applications was overwhelmingly positive, indicating that VASE is clearly fulfilling a need for STEM educators in rural and urban settings throughout Vermont. This year we received a total of 34 highly competitive Small Equipment and HOST grants requesting funds to support STEM innovation. We were able to fund 25 of these grants, with a total of $25,211 awarded in 2020-2021. Among the Small Equipment grants we received, 14 earned funding for a total of $11,097 (see list of Small Equipment Grant awardees attached).

VASE's Hands-On Science and Technology (HOST) grants outreach program is now in its fifth year. A donor who wishes to remain anonymous contributed yet another $10,000 to VASE's HOST program in 2020 to promote capable and practical technology skills among young Vermonters beyond the traditional classroom. This year we were especially mindful of applications from organizations most severely impacted by the pandemic, and we received a very strong response to our solicitation for proposals. Among the HOST grants received, 15 received funding, for a total of $14,114 (see list of HOST grant awardees attached).

Due to continued COVID-19 restrictions, VASE's Spring meeting, which typically convenes at the Vermont State House in Montpelier, was also cancelled this year. The Spring meeting is the typical forum at which new inductees deliver brief research presentations and VASE grant recipients showcase their grant-supported STEM projects as student/teacher teams.   Since such a gathering was neither allowed or prudent during this pandemic year, VASE instead invited its new inductees and 2020 SEG and HOST grant

recipients to submit their research presentations and project displays for uploading to the VASE website for viewing.   These submissions are ongoing and will be showcased on the VASE website in the coming weeks (visit http://www.vtscieng.org).

So what did VASE learn during this pandemic year, and how might these lessons impact VASE's trajectory in 2021-2022?   During a recent Zoom session, the VASE Board agreed that its return to hosting in-person meetings greatly benefits the Academy in ways that are not possible online.   For instance, virtual meetings, albeit less costly, allow less time for meaningful interaction whereas meetings in-person foster a more involved and complete experience.   There is something invigorating about being in a room with people who are excited about the same things, and where meaningful relationships can grow between scientists and engineers in academia, industry, and the private sector.   For these and other reasons not mentioned here, VASE is committed to supporting two in-person meetings each year as it did pre-COVID. The Fall meeting shall remain focused on hosting a keynote speaker on a timely topic in STEM, and bringing deserved recognition to the Outstanding Science Teacher of the Year awardees from Vermont's elementary, middle, and high schools.   The Spring meeting at the Vermont Statehouse in Montpelier is equally important to VASE's mission because it exposes VASE's core values and deliverables to state legislators by showcasing the research of its newest inductees alongside STEM projects that earned the support of VASE grants.   Taken together, we strongly agree that the moderate costs associated with in-person meetings is worth the multiple benefits, and we therefore look forward to returning to hosting in-person meetings beginning with the Fall Annual meeting in October, 2021.

Circumstances surrounding the pandemic also led VASE to learn that its Small Equipment and HOST grant programs fulfill a larger need in Vermont's STEM community than we knew previously.   VASE's Small Equipment and HOST grants awarded over $20,000 in equipment and supplies in 2020; however, additional grants deserving of support were not funded because they exceeded VASE's funding commitment for the year.   Moving forward, VASE's most immediate goal is to increase its funding support so that it can have a wider reach and a bigger impact on STEM fields across Vermont.   We are currently working to identify fundraising sources so that VASE can support more STEM-centered initiatives at a higher funding level.   This is the rationale for a funding increment request in the amount of $5000.00 from the Vermont Technical Council (VTC) in VASE's 2021-22 budget (attached).   Indeed, we remain grateful for the level funding that we have received from the VTC over the past three years.

In closing, VASE is excited about the impact it is having on Vermont STEM and it looks to the future for ways to continue promoting the interests of science and engineering throughout the state, educating Vermonters about the importance of science, technology engineering and mathematics in their daily lives, and helping the state government resolve science and engineering problems.   We will take the lessons we learned during this pandemic year forward so that we may have an even greater impact in 2021-22, hopefully with the VTC's continued support.

Respectfully Submitted,

Grace Spatafora

Grace Spatafora, Ph.D.
President, Vermont Academy of Science and Engineering
Irene Heinz and John LaPorte Given Professor in the Pre-medical Sciences
Middlebury College
May 3, 2021

Fall 2020 HOST Grant Recipients

Name	Organization	Location	Project Title	Award
Jake Lester	Spark Makerspace, Wonderarts	Greensboro, VT	Spark Makes- Building an Innovative Community	$1000
Pike Porter	The Schoolhouse	South Burlington, VT	Growing the Schoolhouse Robotics Club	$880
Paul Fitzgerald	Teams of Innovative Problem Solvers, Inc.	South Burlington, VT	FIRST Technology Challenge Expansion	$3000 (allocated to 3 FIRST teams)
Mike Cole	4-H Club of Manchester	Manchester, VT	Ultimate Goal: FIRST Tech Challenge	$1031.86
Olaf Verdonk	Champlain Valley Union High School	Hinesburg, VT	RoboHawks Robotics Club	$1000
Shawn Kasulka	Central Vermont Innovators	East Montpelier, VT	Central Vermont Innovators FIRST Robotics Team	$1000
Christopher Gray	River Valley Technical Center and Riverside Middle School	Springfield, VT	Radical Robotics	$1250

Fall 2020 Small Equipment Grant Recipients

Name	Organization	Location	Project Title	Award
Toni Zimmerman	Albert D. Lawton Middle School	Essex Junction, VT	Penguin Bot Olympics	$899
Mickey Parker-Jennings	Windham Elementary School	Windham, VT	Hands-on Science During a Pandemic	$768
Carol Rowell	North Country Supervisory Union	Newport, VT	Blue-bots and Beyond	$989.45
Amy Clapp and Lili Foster	Salisbury Community School	Salisbury, VT	Piper Computer Kits	$714
Jessica Tetreault	North Country Supervisory Union	Newport, VT	The Wonders of Dash	$973.98
Rebecca Lynn Allen	Burr and Burton Academy	Manchester, VT	Who Am I? Engaging Kids in Data Analysis….	$1000
Jeff Tobrocke	Champlain Valley Union High School	Hinesburg, VT	CVU Engineering Club- Remote Arduino Robot/Car Project	$300

Spring 2021 HOST Grant Recipients

Name	Organization	Location	Project Title	Award
Chris Callahan	Bennington Area Makerspace	Bennington , VT	Axes of Awesome: Collaboratively Building the X, Y and Z at BAM. Community Design and Construction of Mobile Make Mesas (M3s)	$952
Marc Chabot	Thetford Academy	Thetford , VT	Support of Growth of Thetford Academy Robotics	$1000
Michelle LaFrancis	Spaulding High School	Spaulding, VT	Electrifying Learning	$1000
Karen McCalla	Rutland Area Robotics	Rutland, VT	Upping our Engineering Game	$1000
Jen Olson	Hazen Union High School	Hardwick, VT	Hazen Union Mountain Bike Shop	$1000

Spring 2021 Small Equipment Grant Recipients

Name	Organization	Location	Project Title	Award
Heather Miele	Green Mountain Union High School	Chester, VT	Automation and Robotics: Using VEX To Create….	$1000
Danielle Levine	The Schoolhouse	South Burlington, VT	Trout in the Classroom Project	$485
Meg Hopkins	Sharon Elementary School	Sharon, VT	Increasing Student Engagement Through Robotics and Coding	$800
Betsy Cass	Johnson Elementary School	Johnson, VT	ECHO STEM and Maker Kits	$1000
Adam Rosenberg	Hardwick and Woodbury Elementary Schools	Hardwick and Woodbury, VT	ECHO STEM Kits	$1000
Julie Casey	Coventry Village School	Coventry, VT	Building Community with Bee Bots	$855
Kurt Sherman	Westford Elementary School	Westford, VT	Four Season Analysis and Monitoring of a Westford, VT Vernal Pool	$313

VASE budget for 2020-2021, and proposed budget for 2021-2022

	2020-2021 Budget	2020-2021 Actual	2021-2022 Budget
Balance, fiscal year beginning July 1, 2020		$8,952	
RECEIPTS			
Vermont Technology Council	$13,000	$13,000	$18,000
Contributions from members	$1,600	$100	$1,500
Donation to HOST grant program	$10,000	$10,000	$10,000
Reimbursements	$0	$16	$0
Total Receipts	**$24,600**	**$23,116**	**$29,500**
EXPENDITURES			
Fall meeting and Public Forum			
Travel & accommodation for speaker	$700	$0	$700
Honararium to keynote speaker	$500	$0	$500
Catering	$2,500	$0	$2,500
Conference and Events charge	$0	$0	$0
New member certificate frames	$150	$122	$150
Science Teacher of the Year Award			
Two awards at $1000 each	$2,000	$0	$2,000
Engraved plaques	$180	$0	$180
Small Equipment Grants to K-12 Teachers			
14 total awards	$8,000	$11,097	$13,000
Hands on Science & Technology Grant Awards			
12 Total HOST Awards	$10,000	$14,114	$10,000
VT STEM Fair Award			
cancelled due to COVID	$100	$0	$100
Spring meeting expenses			
Cancelled due to COVID	$700	$0	$700
Website maintenance	$132	$396 (prev. 3 yrs.)	$132
Miscellaneous expenses			
(postage, bank costs,tax e-filing etc.)	$250	$112	$200
Total expenditures	**$25,212**	**$25,841**	**$30,162**
BALANCE, fiscal year end		**$6,226**	