



New Hampshire Academy of Science

501(C)(3) FEDERAL TAX ID #46-5758781

www.NHAcadSci.org

NHAS Annual Report 2017

The New Hampshire Academy of Science, Inc. (NHAS) is one of 47 state academies affiliated with the *National Association of the Academies of Science* and the *American Junior Academy of Science*. Its history can be traced back to 1919.

At NHAS, we are building a better world by engaging young minds and hands in STEM Research. Our mission is to foster the next generation of STEM leaders and problem solvers by:

- **Inspiring** middle and high-school students and teachers with authentic research
- **Creating** a model laboratory environment for STEM research
- **Engaging** communities across the region in STEM research through outreach

These are our bold goals, defining who we are and what we stand for. I am proud that in this past year, the NHAS has made impressive progress by taking these goals beyond aspiration and putting them into practice.

We are grateful to organizations, institutions, foundations, government agencies, and individuals (collectively, our “friends”: <https://www.nhacadsci.org/affiliates>) whose support made these achievements possible.

Peter Faletra, PhD
Executive Director, NHAS

2017 Achievements

NHAS STEM Lab Construction

- Identified an underutilized space in a local school, negotiated the lease contract, raised funding, and built an advanced research lab.
- The NHAS STEM Lab opened on June 4th, 2017.
- The 1200 sq. ft. space is equipped with advanced scientific instruments supporting research across the STEM fields. This was made possible by \$200K+ generous donations and countless hours of volunteer work from the community.

Outreach Programs

Engaging communities across the region in STEM research through outreach programs is an important goal for NHAS. Through our concerted outreach efforts, impressive progress was made.

- The “Advanced Research Program” at Lyme MS began in September 2017. The program is instructed by an NHAS scientist, runs once every Friday afternoon and is funded by the Lyme Foundation and Lyme School.



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- Outreach efforts began with 10 regional NH and VT schools. There has been interest from some MA school students but housing has been their issue – one we are working to solve. The efforts with the 10 regional NH/VT schools involved initial phone/email contacts, followed by visits to individual schools and inviting these schools to visit the STEM Lab. Some of the schools visited the STEM Lab in 2017 and some enrolled students in the NHAS After School Program.
- NHAS outreach has assisted 2 regional schools in applying for STEM grants.
- NHAS Executive Director and an NHAS student were invited and gave a public educational presentation on endangered native orchids at the 2018 NH Orchid Society Annual Orchid Show in Nashua NH.

2017 Summer Program at STEM Lab

- The Summer Program is designed for highly motivated and more experienced students. The program consists of two 3-week sessions of 15 students per session in June & July
- 30 students from 9 schools attended the program; ~20% received financial aid
- 28 of 30 students presented their research to a panel of STEM professionals at Hypertherm, Inc. at the end of their respective sessions

2017-18 After School Program at NHAS STEM Lab:

- The STEM Lab After School Program began in the fall of 2017 with programming 2-days/week and 15 students/day, totaling 30 students/week.
- The fall session ran at full capacity:
 - 3 of 30 students were high school students
 - 3 Richmond MS students joined the After-School Program at our STEM Lab through our outreach efforts.

Financial Aid Awards:

NHAS firmly believes that any motivated students should be able to attend our programs regardless of their financial status. In 2017, NHAS granted about \$11,000 in financial aid to 7 students.

Student Outcomes:

- Attendance at American Junior Academy of Science / AAAS Meeting / Austin Texas
25 students qualified and attended the February 2018 AAAS meeting in Texas. The NH student delegation was the largest contingent representing the National Academies of Science. The students' research abstracts were published by AAAS in November 2017.
- Two teams (3 students per team) are completing data collection for publication in a peer-reviewed journal.



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- One team (3 students) plans to enter the Sigma Xi Student Showcase in 2018.

Operational Outcomes:

- Opened STEM Lab in June and raised \$200K+ in funding
- Awarded 4 grants:
 - Northern Borders Regional Commission (workforce development grant)
 - Byrne Foundation Grant
 - Couch Family Foundation Grant
 - HOPE Foundation
- Hired the first fulltime NHAS scientist in February 2018
- Received generous support from following organizations (in alphabetical order):
 - **AAAS** (Publishers of the journal "*Science*" and the largest Scientific N.G.O.) - provide venues for student and teacher publications and presentations on a national and international level.
 - **Ampylus Inc.** - donation of gene research equipment and competitive awards.
 - **Celdara Medical** - donation of research equipment.
 - **Couch Family Foundation** - financial support.
 - **Crossroads Academy** - lease of a facility to house the NHAS STEM Research Center.
 - **Dartmouth College** - donation of scientific equipment and providing scientific and business mentorship.
 - **Dartmouth Hitchcock Medical Center** - donation of scientific equipment.
 - **EnviroLogix** - donation of gene research equipment.
 - **Hypertherm, Inc.** - volunteers for engineering mentorship.
 - **Hypertherm HOPE Foundation** - financial support.
 - **Intuit** - software donation.
 - **Jack and Dorothy Byrne Foundation** - financial support.
 - **Kish Consulting and Construction, Inc.** - provide facility design, sponsored 1st phase of STEM center renovation.
 - **Larry Shaper, Domus Custom Builders** - provide construction design.
 - **Lyme Foundation** - financial support.
 - **Microsoft Corporation** – software donation.
 - **National Science Teachers Association** - provide venues for students and teachers to share information.
 - **National Association of Academies of Science** - provide a venue to publish and present to the national and international scientific community.
 - **Northern Borders Regional Commission** - financial support.
 - **New Hampshire Charitable Foundation** - financial support.



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- **Regional Scientists** - have provided and will continue to provide mentorship, technical support, and guest lectures.
- **Sigma Xi** (Premier Scientific Research Society of North America and publishers of "The Scientist") - provide participation in its annual symposia and publication in their "*Journal of Young Investigators*".
- **Simbex** - financial support.
- **Warren E. Bahr, CPA, PLLC** - provide tax and financial advice.
- **White Mountains Insurance Group** - financial support.
- **White River Junction VA Medical Center** - donation of used research and laboratory equipment.

The year 2018 is off to a strong start. Teachers and administrators from 10 regional schools have visited the STEM Lab and expressed excitement at the opportunity for professional development through research experiences. These following schools are committed to sending students and teachers to the NHAS STEM Lab:

- 1) Crossroads Academy
- 2) Hanover HS
- 3) Hartford MS
- 4) Hartford HS
- 5) Lebanon HS
- 6) Ledyard Charter School
- 7) Lyme MS
- 8) Richmond MS
- 9) Thetford Academy
- 10) Warren Village School

As a result of these outreach efforts, the NHAS Winter/Spring session is over-booked with 41 students. 11 are new students from these schools.

- Thetford Academy - 1
- Richmond MS - 3
- Hartford MS - 3, and
- Hartford High - 4

This is exciting progress! Your support in 2017 made this possible. We look forward to greater progress and your continued support in 2018.