NATIONAL ACADEMIES Sciences Engineering Medicine

# Call to Action for Science Education Project Ideas

## Virtual Workshop on Alliance Formation

*July 14, 2022*

JULY 2022 UPDATE

# Tennessee Rural Impact Project (TRIP) led by the Science Alliance of Tennessee

## Snapshot

- With its six member institutions, the Science Alliance of Tennessee has an annual economic impact of $44 million, engaging more than 1.1 million Tennessee students, teachers and visitors of all ages in hands-on learning opportunities in STEM.
- Member institutions include: Adventure Science Center, Nashville; Creative Discovery Museum, Chattanooga; Discovery Center, Murfreesboro; Hands-On Discovery Center, Johnson City; The Muse, Knoxville; Museum of Science & History, Memphis.

## Description

- The Alliance is committed to addressing a critical need of the museum field - understanding and adequately supporting rural under-resourced communities with limited museum access. Over the course of three years, TRIP will provide a proof-of-concept of the ways in which informal education centers across regions and states can engage, learn from and support rural school districts' teachers, families and communities. Key components include relationship building, museum and community asset mapping, and collaborative integration and implementation of museum and community resources for children K-2, teachers and families. TRIP will engage intensively with 2 cohorts of rural school communities from 6 distinct rural counties over 2 school years, and will illustrate the ways in which a unique alliance can collaboratively support STEM at the K-2 level, enhance teacher practices, and engage family and community. The project will conclude with a statewide invitation to a virtual convening.

## Contact


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- https://www.imls.gov/grants/awarded/mg-249465-oms-21

# Quantitative Biology at Community Colleges (QB@CC)

## Snapshot

- QB@CC is an NSF-funded (RCN UBE) network building initiative, primarily led by an interdisciplinary, community college faculty from life sciences, mathematics and statistics disciplines. The goals are to create and disseminate open access, quantitative biology-focused curricular resources that will facilitate a biology educator to teach quantitative skills and mathematics/statistics educator to teach quantitative concepts by integrating biological themes, in their respective courses.

## Description

- In spite of several calls for action (AAAS' V&C, for example), biology education falls short in bringing quantitative skills into the curriculum. Quantitative Biology at Community Colleges (QB@CC) is an NSF-funded grant with a long-term goal to transform pedagogical strategies in life sciences, mathematics and statistics education by providing interdisciplinary connections. Currently in year 3, QB@CC is building an interdisciplinary network of CC faculty that lead and build the network by supporting collaborative efforts to create and disseminate quantitative skills-focused resources. The main goals are to 1) foster collaboration to support and promote an interdisciplinary network, 2) develop & publish quantitative skills-focused resources, and 3) disseminate the resources and pedagogical practices to grow the network. QB@CC has recruited over 60 faculty and published twenty modules. Modules are published as Open Education Resources and accessible to educators in higher education.

## Contact


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# California Science Community of Practice

## Snapshot

- We are a coalition of science educators and professional organizations laser-focused on changing a K–12 education system that has yet to deliver high-quality, rigorous science learning experiences in equal measure to all students in California (CA). Since 2015, we have used the community of practice model to build educators' capacity to advance access to meaningful science teaching and learning and amplify implementation of the CA NGSS.

## Description

- We aim to ensure access to high-quality, NGSS-aligned instruction for all CA students and provide science educators & professional organizations with a powerful opportunity to come together to develop and implement a shared vision for the future of equitable science learning in CA. Inspired by the Call to Action, our coalition authored a Blueprint for Action for systemic, coordinated reform and launched an advocacy campaign to implore the state to invest in science education and expand our efforts to build a coherent infrastructure across the CA TK-12 science education system. We introduced a legislative proposal in January that was successfully reflected in Governor Newsom's revised May 2022 budget and included $385 million to expand our statewide networks in science & math and support districts to fund educators' participation in professional learning organized/facilitated through our networks. We are now urging the Legislature to work with the governor to pass this budget.

## Contact


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# West Sound STEM Alliance

## Snapshot

- Slooh, the only organization offering live online telescope feeds of amazing astronomical events to students, and the West Sound STEM Network recently expanded their partnership to help more teachers and students throughout northwest Washington State engage in space exploration that is aligned with state and national standards.

## Description

- With Slooh, students can view phenomena such as lunar changes, solar flares, asteroids, living and dying stars, and a variety of nebulae in real-time using Slooh's Mission Interface and user-controlled network of robotic telescopes in the Canary Islands and Chile. And, educators are supported by Slooh's astronomy team and receive robust professional development and product training to ensure that all students have access to celestial phenomena.

## Contact


- Kareen Borders, West Sound STEM Network; Michael Paolucci, Slooh's Online Telescope
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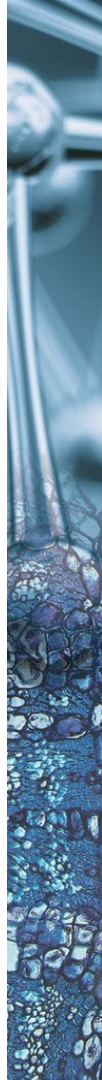
- https://www.education.slooh.com/post/west-sound-stem-network-expands-partnership-with-slooh-to-engage-more-students-in-space-exploration



# The New Hampshire Collaborative for Regenerative Medicine and Education for Scientists and Engineers of the Future (NH CREATES)

## Snapshot

- NH CREATES is a collaboration among K-12 districts, higher-ed, non-profits, and the regenerative medicine industry in New Hampshire. Our goals are to provide professional development for teachers around regenerative medicine, assist and support youth projects in the classrooms and at UNH Tech Camp, as well as forge robust pathways to the regenerative medicine industry.

## Description

- NH CREATES is an emerging STEM ecosystem in New Hampshire focused on the regenerative medicine and biofabrication industry. Its partners include select K-12 school districts, higher-ed institutions, non-profit educational and business organizations, as well as the Advanced Regenerative Manufacturing Institute (ARMI). ARMI is the consortium of national companies setting the roadmap for the industry to bring cellular tissue repair therapies to scale; and it is headquartered in Manchester, New Hampshire. We will be providing a two-week annual teacher development program involving faculty advisors and professionals from the industry. Teachers will design a project around regenerative medicine for their classrooms to run during the academic year. An external advisory council meets regularly to draft a shared mission and vision, and to strategize development and growth of NH CREATES.

## Contact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# The NextGen-WA STEM Teacher Preparation Collaborative

## Snapshot

- We are a collaboration among institutions (academic, government, NGO, and business) in Washington State committed to systemic change in teacher preparation. Our vision is a larger, more diverse, more effective STEM teaching workforce so that every K-12 student has inspirational STEM learning experiences.

## Description

- In Washington State we have developed and piloted a collaborative model for improving the recruitment, preparation, and graduation of future STEM teachers statewide. Our Collective Impact model (Kania and Kramer, 2011) promotes collaboration across and within institutions by faculty, administrators, and other stakeholders for the benefit of all our students. We aim to promote improvements specific to the needs, contexts, constraints, and opportunities of each STEM teacher preparation program. We are guided by a common vision of the knowledge, skills, and abilities that secondary STEM teachers, and elementary teachers of STEM will need to prepare and inspire future scientists, mathematicians, engineers, teachers, and informed citizens. While our model is focused on creating next generation STEM teachers, we believe many of its components and processes could be adapted to improve the success of students in other areas of study.

## Contact


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# NSF INCLUDES National Network

## Snapshot

- NSF INCLUDES seeks to broaden participation in STEM fields through a National Network that will inspire collaborative efforts aimed at enhancing equity and inclusion to encourage the active participation of historically underrepresented and underserved groups in STEM. The National Network is comprised of Alliances, a Coordination Hub, other funded projects, broadening participation researchers and practitioners, other federal agencies, and organizations that support the goals of NSF INCLUDES.

## Description

- NSF INCLUDES funds Alliances to enhance preparation, increase participation, and ensure the inclusion of individuals from historically underrepresented groups in STEM. Alliances develop partnerships across the public, private and academic sectors, share data and best practices, contribute to the knowledge base on broadening participation in STEM through research, and establish a framework for collaboration among partners.
- The NSF INCLUDES Alliances are:
  First2Network (www.first2network.org), CAHSI (cahsi.utep.edu), STEM Core (www.stemcore.org), IGEN (igenetwork.org), ASPIRE (sites.google.com/view/aspire-alliance/aspire-home), STEM PUSH Network (www.stempushnetwork.org), STEM OPS (stem-ops.org), SEAS Islands Alliance (www.seasislandsalliance.org), and five recently funded Alliances: Native FEWS; TAPDINTO-STEM; AIICE; Engineering PLUS; and ALRISE.

## Contact


- Tori Rhoulac Smith, National Science Foundation
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- https://www.includesnetwork.org/about-us/who-we-are/network-partners

# Colorado STEM Ecosystem

## Snapshot

- Our goal is to build a STEM coalition to (1) uplift existing successful efforts, and (2) jumpstart a cross-sector collaboration to bridge educational and economic needs across Colorado. Our definition of STEM is broad, interdisciplinary and inclusive.

## Description

- The STEM Learning Ecosystems is a global Community of Practice designed to fuel cross sector partnerships. The Colorado STEM Ecosystem (CO STEM) relaunched in the spring of 2022 with 120 members to date and growing, joining 99 ecosystems devoted to advancing STEM education-to-career pathways. CO STEM serves as an intermediary to connect, activate, mobilize, fortify, and elevate Regional Collectives statewide by catalyzing the following priorities:
  1) Early identity - Every student has the opportunity to adopt a strong STEM identity beginning at an early stage in their education journey leading to workforce readiness.
  2) Workforce advocacy - Each individual within the Ecosystem is a workforce activator who broadens student agency and opportunity.
  3) Partner agility - Education and industry engage in adaptive, mutually beneficial relationships to co-create STEM talent.

## Contact


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# CSTA (Computer Science Teachers of America)

## Snapshot

- CSTA is a voice for teachers, driven by teachers. CSTA is committed to equity in our community and for the students our members serve.

## Description

- CSTA builds strong relationships with its members, values their input, acts on their feedback, and recognizes their contributions to the community. The community is led by K-12 computer science teachers, and puts teacher needs at the forefront by sharing the latest best practices in K-12 computer science education. CSTA creates local communities across the US + Canada that ensures every computer science teacher has a home by building the largest teacher-led computer science professional development event in the world each year! Additionally, CSTA provides access to exclusive discounts on courses and tools that help take teaching practices to the next level.

## Contact

- https://www.csteachers.org/page/board-of-directors; Recommended by Latrece Johnson, United Pentecostal Holiness Church
- https://www.csteachers.org/page/engage
- https://www.csteachers.org/

# The Verna J Kirkness Science and Engineering Education Program Education System

## Snapshot

- Our mission is to increase the number of Indigenous students graduating from Science and Engineering Programs in Canada by offering Grade 11 indigenous students the opportunity to spend 1 week in a University Laboratory . We have 13 partner universities from all across Canada with more wanting to join - an easily adaptable program for any jurisdiction.

## Description

- The Verna J Kirkness Science and Engineering Program (VJKSEEP) addresses the under-representation of Indigenous students at Canadian Universities by offering scholarships to indigenous grade eleven students to spend one week in a campus research laboratory
  The VJKSEEP will develop highly motivated role models to foster the importance of graduating from high school and consider attending post secondary education.
  Students come away from the program with a commitment to finish grade 12 and the confidence to achieve the academic results needed to gain admission to a post secondary institution. Impact is not only on the students but also on the university professor mentors and their graduate students participating in the program.

## Contact


- Patrick Lauzon, The Verna J Kirkness Education Foundation
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# Collegiate Edu-Nation

## Snapshot

- CEN is a growing network of high-performing rural school districts focused on college and career focus for all students, educational attainment, transformative educator development, and exemplary stewardship. While CEN starts with schools, the network engages whole communities to reinvigorate education, revitalize local economies, and reimagine what's possible for rural America.

## Description

- CEN's aim is to break the cycle of generational poverty in rural America and promote multi-generational prosperity. CEN believes fostering a college and career focus, promoting a culture of educational attainment (degrees and industry certifications), and transforming educational delivery systems is the surest path to those ends. School transformations are achieved through programming that is STEM-based, and promotes project-based learning, adaptive learning, apprenticeships and internships, and leadership skills.

## Contact

- Kim Alexander; Recommended by Bruce Herbert, Texas A&M University
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# BCM Network of Affiliated STEM Schools

## Snapshot

- Baylor College of Medicine and several Texas school districts have partnered to develop STEM magnet programs focused on health professions and biomedical science. The network includes 11 middle and high schools in the Houston area and South Texas.

## Description

- Beginning with the establishment of DeBakey High School for Health Professions in 1972 and using it as a model, Baylor College of Medicine has collaborated with several school districts and entities to develop a network of high schools and middle schools with programs aimed at students in the State of Texas, interested in careers in medicine, science and the health professions. This network has provided a foundation for 8-year BS/MD programs and unique STEM curriculum programs disseminated on BioEd Online (www.bioedonline.org).

## Contact

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# AAAS STEM Volunteers Program

## Snapshot

- We recruit STEM professionals, both retired and still employed, to assist K-12 STEM teachers

## Description

- Started in 2004. In 2020, we had 170 volunteers in 4 school districts in the DC area.

## Contact


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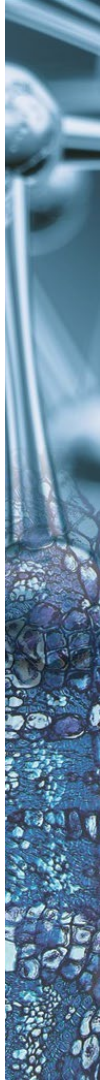
- stemvolunteers.org

# Washington State LASER

## Snapshot

- Washington State LASER is a statewide network of STEM education leaders working to advance equitable PK-12 STEM education by acting on systems levers: school/district operations, curriculum and instructional materials, community and administrator engagement, assessment, and student pathways.

## Description

- Washington State LASER is a state science/STEM education program led by Washington STEM in partnership with the Office of Superintendent of Public Instruction, Educational Service Districts, and the Institute for Systems Biology. Washington State LASER helps schools and districts remove barriers and create opportunities for students to thrive in high-impact NGSS-aligned STEM learning experiences. We meet school and district leaders where they are, and co-create strategic approaches that attend to the pillars of a healthy PK-12 STEM ecosystem: operations/infrastructure, student pathways, community and administrator engagement, assessment, curriculum, and instructional materials. This work largely occurs within nine Regional Alliances. As a statewide network of STEM education leaders, we offer and participate in professional learning on issues of equity in STEM education and how to apply our learning to the system levers that enable equitable PK-12 STEM learning.

## Contact

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# California NGSS Collaborative

## Snapshot

- The CA NGSS Collaborative joins together the major professional learning providers for science in CA and it serves as the statewide infrastructure for the planning, development, and implementation of affordable and high-quality professional learning resources. The CA NGSS Collaborative partners are proactive as well as responsive to the needs of K-12 educators, administrators and other educational leaders.

## Description

- Since the adoption of the NGSS, California K-12 education system has embarked on a series of education reform actions aiming at promoting a robust implementation of phenomena-driven 3-dimensional learning in our classrooms. Starting in 2014, the CA NGSS Collaborative (including the California Department of Education, California Science Project, California Association of Science Educators, CCSESA County Offices of Education, and the K-12 Alliance @WestEd) formally organized a coordinated response to the needs of K-12 educators by developing and disseminating statewide high-quality professional learning experiences and leadership trainings. Annually, the CA NGSS Collaborative reaches over 800 educator leaders in the state, providing them resources to bring back to their schools, districts, and communities. Since 2020, the CA NGSS Collaborative has been developing and piloting the CA NGSS Toolkit for Student-Centered Assessment Systems.

## Contact


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# Choose Ohio First & NeoSTEM

## Snapshot

- Choose Ohio First - Goal to build STEM pipeline to STEM workforce & keep STEM talent in Ohio, especially to support underrepresented populations in STEM disciplines.
- NeoSTEM - STEM ecosystem in the North East Ohio region which incredible collaboration across industry, education, and non-profits

## Description

- Choose Ohio First : The Choose Ohio First Scholarship is designed to significantly strengthen Ohio's competitiveness within STEM disciplines and STEM education. The Ohio Department of Higher Education provides funding to Ohio's colleges and universities to support students in innovative academic programs. Participating universities and colleges award scholarships to students desiring a certificate, associate degree, baccalaureate degree, or graduate degree in eligible STEM and STEM education fields.
- NeoSTEM: The NeoSTEM Ecosystem is a collaboration of many organizations throughout Northeast Ohio who partner to improve STEM educational opportunities for all students. Formed in 2014, the goals of the NeoSTEM Ecosystem are to improve meaningful STEM learning opportunities for all students in the Northeast Ohio region. The NeoSTEM Ecosystem holds regular virtual and in-person meetings to learn about what community educational needs are and to develop solutions for those needs.

## Contact

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# Diggin' Digital

## Snapshot

- A two part project - Indigenous teacher resource hub and student boot camps offered in predominantly Indigenous rural/remote communities and inner city schools.

## Description

- The partner, Saskatchewan Polytechnic, is a member of IMII and part of the innovation ecosystem for Saskatchewan's (Canada) minerals industry. The industry is striving to build a workforce representative of the communities in which it operates, and has identified the participation rates of Indigenous peoples in ICT programs and careers as a challenge to be addressed. The Diggin' Digital projects recognize the need to engage Indigenous students while still in the K-12 system if they are to consider STEM post-secondary education and then careers in mining.

## Contact

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# The Avalon Village

## Snapshot

- Every Child is A Genius and The Avalon VIllage are working diligently to create an educational environment that sustains an eco-friendly self sustaining environment. This includes sustainable renewable energies, food sovereignty and economic empowerment.

## Description

- The goal of Every Child Is A Genius is to generate and sustain an educational community and STEAM opportunities for the whole family. In the internationally acclaimed community "The Avalon VIllage", and with the strong support of Mama Shu HArris we are expanding our Imhotep STEAM Lab, opening "Every Child Is A Genius" Day Care and soon the Every Child Is A Genius School. The Avalon VIllage is located in the economically depressed city of Highland Park, Michigan, where the median income is $20,666.00 with less 8% of the children proficient in math and ELA. This city had the street lights removed because it couldn't pay, the library closed and there is only one school in the HP school district. This partnership is expanding bringing more corporations volunteers and community partners to the table to give our families opportunities that potentially build equity in the future.

## Contact

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# Ioponics (Iowa Aquaponics)

## Snapshot

- Ioponics, Iowa educational aquaponics, creates introductory learning systems for hands-on experience, phenomenon investigation, and ecosystem management in PK-16 science and agriculture disciplines. The 2021-22 cohort of STEM mentors shares ideas, lessons, and questions across 55 Iowa counties and 11 states.

## Description

- Ioponics is a hands-on teaching tool that integrates multiple disciplines and interests into a combined learning experience. The unit consists of three parts: aquarium (for aquatic species), plant tub (agricultural or non-agrarian), and LED light. Fauna is manually fed by students. The flora receives nutrients from the animal waste. Ammonia is transformed into nitrites which in turn is transformed into nitrates by naturally occurring aerobic bacteria. The indoor ecosystem supports deeper understanding in STEM fundamentals.

  The physical system is assembled, manipulated, and maintained by learners aged 5 to 50. Dozens of cross-curricular NGSS/ AFNR lesson plans at the PK-3, 4-8, and 9-12 are provided for mentors. Mentors join an online cohort sharing ideas, triumphs, and tribulations while also providing foundations for the creation of additional lessons by pre-service students. The STEM Council accepted Ioponics for the Iowa Scale Up Program again in 2022-23.

## Contact


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# Montana Environmental Education Association

## Snapshot

- MEEA and OPI working together to get student-centered learning into Place-based learning.

## Description

- The beginning of truly doing some work with this long time collaboration. Presenting with teachers to the MEEA group to help facilitate getting them into classrooms as viable learning and no long "fluff" pieces by adding standards and rubrics. Getting MEEA to present at OPI conferences with that intention. Baby steps at this point.

## Contact

- Michelle McCarthy, Montana Office of Public Instruction
- Carolyn Taber and Naomi Alhadeff
- https://www.montanaeea.org/annual-conference-2/

# BaySci

## Snapshot

- Focused on district capacity-building, BaySci is committed to improving science education through explicit attention to equitable science teaching and learning through the development of systems and organizational capacities (e.g., professional learning, distributed leadership, supportive policies). BaySci follows a network strategy, bringing together educational institutions, districts, and communities to pursue strategic and systemic improvement of their K-12 science education programs.

## Description

- The overarching objective of BaySci is to support the development of system capacities for science education that result equitable outcomes for students. The ways in which a district develops the capacities, communication, policies, and culture that are necessary to build and sustain an equitable high-quality, standards-based science education program, we call the “signal” of science (relative to the “noise” within and surrounding the district). We believe that in order for the signal of science to be strong enough, the district must develop multiple capacities for supporting an equitable science program and these capacities must be designed around those groups of individuals marginalized by the system. Within BaySci, equitable K-12 science becomes a shared and important priority among districts, leaders, teachers, and community - who are eager to listen to, struggle with, and learn from each other, generating a level of commitment not typically seen in school districts.

## Contact


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# United States GLOBE Program Partnerships

## Snapshot

- The expansion of GLOBE (www.globe.gov) throughout the United States is a direct result of our Partnerships with U.S. organizations including colleges and universities, informal science and NASA centers, and others. Through these agreements, The GLOBE Program works diligently to recruit GLOBE schools, train GLOBE educators, and support teachers and their students in implementing GLOBE's protocols and conducting environmental science research.

## Description

- The GLOBE Program is built around youth, educators, and citizen scientists using environmental science data collection protocols for student and STEM professional research using low-cost equipment. Over 120 GLOBE Partnerships at colleges, universities, informal science education organizations, NASA centers, school districts, and other nonprofits, assist pre- and in-service teachers, facilitators, and learners through professional learning and mentorship, and co-host events where youth showcase their research. Community-embedded Partnerships work with K-12 schools, nonprofits, and science centers to offer professional learning, afterschool programming, citizen science training, and family events. The alliance (in development), supported by the GLOBE U.S. Office, collaborates on/through six regional Student Research Symposia (grant-supported) each spring, in-person meetings, newsletters, social media, a listserv, Annual Yearbook, and weekly "Watercooler" virtual meet-ups.

## Contact

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# GLOBE and Earth Systems Science (ESS) Collaboratives

## Snapshot

- Regional groups of GLOBE Program Partnerships, scientists, researchers, outreach specialists and educators who work together to spread Earth system science initiatives throughout their regions using the tools and resources of the GLOBE Program.

## Description

- The GLOBE and Earth Systems Science (ESS) Collaboratives are 7 teams supporting youth investigations, learning around ESS, and GLOBE (www.globe.gov). The NSF-funded project supports network development, expansion, and planning time to focus on providing opportunities for educators, underserved and underrepresented youth, and workforce development. Collaboratives: California Strong (WestEd/UC Berkeley, JPL, SF Bay and Elkhorn Slough NERR, Outdoor Education at LAUSD), Midwest (U. of Toledo, Wayne RESA, U. of Wisconsin Madison, Purdue), New York (SUNY Fredonia, BOCES, NYS DEC, Buffalo State, WNY CAM P-Tech Academy), New England (Boston U., U. of NH, Shelburne Farms, Blue Hill Observatory), GLOBE HBCU Informal Education (TN State U., Green Door Initiative, Xavier U., West Atlanta Watershed Alliance, Legacy Bridges STEM Academy), Colorado (CoCoRaHs, CSU, Metro State U., UCAR, CU Fiske Planetarium, St. Vrain Schools), and JUST Science (Center for Sustainable Communities, U. of WY, IGES).

## Contact

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# Oregon Mathematics Alignment Team (ORMAT) (part of CBMS High School to College Mathematics forum)

## Snapshot

- In Oregon, the group is using upcoming changes to the high school curriculum (more pathways to earn high school mathematics competency such as data science) to engage secondary and postsecondary mathematics educators in discourse about the high school to college pathway.

## Description

- The changes to the high school curriculum involve more than content; they are also focused on teaching practices that center equity. Last summer, mathematics educators from middle schools, high schools, community colleges and public universities participated in a virtual summit that both provided information about changes in mathematics education at three institution types: high school, community colleges and university. Participants also were given time to discuss these ongoing and upcoming changes in small groups that brought together educators from across the different institutions. Current work is focused on preparing high school teachers to implement the changes to the high school curriculum. The project is a rich context for research that focuses on how alignment takes place over time.

## Contact

- Mark Freed, Oregon Department of Education; Recommended by Ann Sitomer, Oregon State University, STEM Research Center
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- https://www.cbmsweb.org/cbms_forum_6/background-to-the-forum/

# Regional Initiatives

## Snapshot

- NCWIT's Regional Initiatives bundle research-based programs and practices to increase the local participation of women and girls in tech fields and careers. NCWIT partners with community stakeholders to build awareness, inspire participation, and connect women to like-minded peers, role models, and opportunities.

## Description

- Regional Initiatives works with communities that have emergent tech hubs, active leadership, state-wide support for CS education, and potential for pipeline growth, especially with women and other underrepresented groups to unite and form regional, action-oriented coalitions.

  Each region is engaged in a unique action plan. Some common components include providing inspiration and opportunities for girls and women in high school, college, and the workforce through the Aspirations in Computing program and equipping educators, counselors, and administrators through Counselors for Computing and Academic Learning Circles. This project also helps build inclusive cultures in the workforce through "Innovation, Culture, and You" workshops. Currently, NCWIT is deploying this strategy in Michigan, Alabama, and Pennsylvania.

## Contact


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# GIS & Drones: A Nonprofit & PhD Student Alliance

## Snapshot

- Students in grades 5th to 12th are exposed to high-quality geographic information system (GIS) and drone learning experiences, mentored on geoscience careers, and serve in leadership roles. The GIS instructor, a doctoral student, is mentored on educational research and evaluation, provided the opportunity to write grants collaboratively, and supported in providing students access to geoscience technology, GIS software, and space to host events.

## Description

- The overarching goal of this alliance is to increase the number of geospatial scientists from underrepresented groups in the US workforce and to mentor a Black female geoscience doctoral student. Our programming provides authentic hands-on research experiences, exposure to geoscience applications, encourages curiosity, interdisciplinary skill development, and a positive view of science. Students work through the process of developing and presenting their own research project. Our organization provides mentoring, training, and support to a geoscientist who also identifies as an educator. She wants to perform research, teach, and assist students in navigating challenges they may face while pursuing higher education and STEM careers. Through the use of public facilities, targeted STEM K-12 programming, and both formal and informal partnerships; our executive leadership and members are continuously creating pathways for learners in science.

## Contact


- Terra McKee, The American Association of University Women (AAUW) - Greensboro NC
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- https://sites.google.com/aggies.ncat.edu/gisdrones/home; https://greensboro-nc.aauw.net/techevents

# NYSCI Neighbors

## Snapshot

- NYSCI Neighbors' mission is to build deep, long-term relationships with the local community by collaborating with schools, community-based organizations and families to co-create opportunities that improve access and engagement with science, technology, engineering and mathematics (STEM).

## Description

- Located in Corona, Queens, the New York Hall of Science (NYSCI) is based in one of the most multicultural and diverse boroughs in New York City. Historically serving several waves of immigrants, Corona has seen one of the largest influxes of newly arrived and first-generation Latino immigrants over the last several decades. Inspired by the community's diversity, NYSCI has developed NYSCI Neighbors to create a rich program of educational opportunities for children, families, and educators.

## Contact

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# Infini-D Learning

## Snapshot

- Supplemental Game-Based STEM Assessment Platform

## Description

- Infini-D Learning is a collaborative game the whole class gets to play together that measures the knowledge, skills and dispositions of each student. Students are assessed as they participate in missions built around current Math and Science standards. Each student computer is transformed into a futuristic control station where they must gather data, make decisions and apply their learning in order to succeed. NSF Funded and NGSS/CCSS standards aligned.

## Contact


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# NSF INCLUDES Alliance: The STEM PUSH Network

## Snapshot

- The STEM PUSH Network is the first National Alliance of PreCollege STEM Programs who are working together to broaden participation in STEM. Through research and collaboration, STEM PUSH will leverage the power of pre-college STEM programs and the ecosystems in which they operate to establish pathways for Black and Brown students into post-secondary STEM studies.

## Description

- The STEM PUSH Network is a national alliance of precollege STEM programs (PCSPs), STEM and culturally responsive pedagogy experts, formal and informal education practitioners, college admissions, the accreditation sector, and other representatives. It establishes a powerful collaborative improvement space using the networked improvement community (NIC) model and a “next generation” accreditation model to communicate the power of precollege programs to admissions offices. Framing this work is the notion that the accreditation of PCSPs is an equitable supplement to racially biased admission metrics. The Alliance has four key objectives: 1. establish and support a national precollege STEM program networked community, 2. develop a standards-based precollege STEM program accreditation system for broadening participation, 3. test and validate the model within the networked improvement community, and 4. spread, scale, and sustain the model through the STEM Ecosystems.

## Contact


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# Idaho STEM Ecosystem

## Snapshot

- The Idaho STEM Ecosystem (EcosySTEM) includes a group of engaged partners from PreK-12 and higher education, out-of-school education, industry, nonprofits, state and local government agencies, and the legislature. The EcosySTEM fosters the integration of STEM experiences for Idahoans, creating problem-solvers and critical thinkers who will sustain and lead our economy.

## Description

- Idahoans in every part of the state have access to brighter futures when communities work together and share resources to communicate the value of local STEM education, experiences, and careers. Enter the Idaho STEM Ecosystem! We are a network of collaborators committed to leveraging shared resources that effectively raise awareness of STEM opportunities and connect all Idahoans to STEM pathways in their community. The EcosySTEM members are dedicated to:

*Building awareness of and ensuring access to STEM education opportunities and STEM careers.
*Aligning STEM education with Idaho workforce needs of today and tomorrow.
*Creating successful metrics for STEM education and programming.
*Building STEM momentum within the state and nationally.

## Contact

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# STEM PUSH Network

## Snapshot

- This National Science Foundation-funded Alliance brings together leaders of precollege STEM programs (PCSPs), improvement scientists, equity and justice experts, college admissions leaders, regional STEM ecosystem leaders, and college support organizations to transform the way Black, Latinx, and Indigenous student's participation in PCSPs is considered in college admissions processes.

## Description

- Lack of racial and ethnic diversity in STEM is a national problem. Precollege STEM programs (PCSPs) offer a solution because they fill opportunity gaps for rigorous STEM exposure, engagement and self-efficacy. Yet while many PCSPs are successful in attracting and retaining underrepresented minority (URM) high school students, PCSP programs have not been leveraged to increase the number of URM students admitted to undergraduate STEM programs. This network responds to a mounting body of research calling for transformation in college admissions processes to reduce bias, account for diversity, and maximize access. STEM PUSH is composed of PCSPs, STEM and culturally responsive pedagogy experts, college admissions and higher education representatives. STEM PUSH leverages this collective using a networked improvement community model to transform admissions pathways for URM students in urban ecosystems.

## Contact


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# Transformative SEL in Action: A YPAR Project

## Snapshot

- This Youth Participatory Action Research (YPAR) Project is a partnership between Student Success Network and a youth-activism partner organization bringing together a team of 12 high school and college students from NYC to investigate and take collective action to address issues/challenges that directly impact them.

## Description

- We've seen that too often, research is conducted on young people rather than with young people. In response, during the 2021-22 academic year, Student Success Network launched Transformative SEL in Action, a Youth Participatory Action Research (YPAR) project.

  This project trains and hires young people, including young people with learning differences, as researchers. Through this project, youth researchers ask questions that traditional researchers may neglect, probe root causes of inequities, and develop collaborative solutions with adult partners. They will share their findings in an action-oriented product, like a documentary or social media campaign - rather than a traditional report!

## Contact

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