

2023–2024 IMPACT REPORTS



PAsmart

Demetrius Roberts, Ed.D.

Special Consultant to PDE for STEM & Computer Science



pennsylvania
DEPARTMENT OF EDUCATION

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OVERVIEW

Summary of Portfolio of STEM Initiatives

Portfolio Leads

Brian Gasper & Demetrius Roberts

✓ PAsmart Objectives

- Strategically investing resources in initiatives to support economic growth, and education & training opportunities;
- Achieving successful outcomes for Pennsylvania students, workers, businesses, and communities;
- Improving coordination and alignment of education and workforce development programs, services, and funding;
- Transforming inter-agency, cross-sector collaboration around improving STEM outcomes in PA

👥 Participants & Reach

All 29 IUs and >400 LEAs impacted



List of the Portfolio of Projects

1. CSO Statewide expansion
2. Remake Learning Days (RLD) Across PA
3. RLD Migrant Ed
4. Governor's STEM Competition
5. STEM Statement of Work
6. STEMInPA: Environmental Literacy & Sustainability
7. STEMInPA: PennSEL
8. STEMInPA: PARSE
9. STEMInPA: Student-Centered Learning
10. STEMInPA: Pennsylvania Statewide STEM Ecosystem
11. STEMInPA: BrightNow
12. STEMInPA: Philadelphia Ed Foundation Support
13. CSinPA: K-12 CS Technical Assistance
14. CSinPA: K-8 Professional Learning Programs
15. CSinPA: 7-12 Professional Learning & Certification
16. CSinPA: Drones Professional Learning Programs
17. CSinPA: Administrators' & Counselors' Professional Learning
18. CSinPA: Innovations and TACTICS Team
19. CSinPA: Innovative Emerging Practices
20. CSinPA: Comprehensive Support Model
21. CSinPA: Annual CSforAllPA Summit
22. CSinPA: Engineering by Design (EbD) Implementation

📊 Key Facts

30+

PLCs for IU members, school administrators, and teachers

2,000+

Educators participating, directly, in professional learning (min)

40,000+

Students with proximal impact from programming (est.)

Primary Streams of Work

Expanding Computer Science

Enriching STEM Education

Promoting Student-Centered Learning



8+ Projects



7+ Projects



All 22 Projects

Governor's STEM Competition

Pennsylvania Department of Education



Partnership Team

PaTTAN

Primary Contacts

Tara Russo

Chris Cherney

Launched

Sept 2013

✓ Objectives

- Create opportunities for students to apply STEM-classroom learning
- Requires collaboration between schools and the community
- Students research, develop, and present a device or project that can improve the lives of Pennsylvanians and can accomplish practical tasks



Participants & Reach

Open to all PA students in grades 9-12

29 IUs
send
teams

70-100
teams
apply each
year

5
students
per team



Impact Measures (as of Jun 2024)



Participant Profile*

1% Grade 9
9% Grade 10
30% Grade 11
60% Grade 12

* Participants are skewed toward jr's and sr's because teams are limited to 5 sts total.



Diversified Participation

Division 1 Teams

Have competed previously

Division 2 Teams

Have been newly-formed



Downingtown STEM Academy Division 2 Grand Champions



Biovolt V2 is a biophotovoltaic cell: a plant-based battery designed to be used by Pennsylvania farmers as a source of renewable energy. The device generates power without taking up space on the surface by utilizing the interaction between a plant's natural processes of photosynthesis and bacterial activity. This updated model has a modular design, environmentally friendly materials, and uses series and parallel combination wiring to increase the efficiency of the device.

“

It's not your typical science fair-type of competition. The projects really show how the students have used the engineering process....The kids have a lot of fun, they're challenged.

— Dr. John Janasik (Bishop Shanahan HS)



Lead Team

PaTTAN

Primary Contacts

Sara Frey

Sergio Anaya

Launched

Jan 2018

✓ Objectives

- Increase & diversify the number of students & educators learning in CS
- Increase the number of middle & high schools offering CS
- Increase the number of certified CS teachers in grades 7-12
- Increase the number of LEAs with a comprehensive CS plan



Participants & Reach

In 2023-24, there were 3,444 newsletter subscribers and

29 IUs
involved

14+
programs
offered

350+
LEAs
involved



Featured Programming



Baseline Data* (Jul 2021)

45% Fem & 32% BIPOC

students in CS courses in PA - significantly under-represented; CS teachers are only 5% BIPOC



Strategic Planning

(i.e., SCRIPT)

Support for LEAs in crafting their own comprehensive CS strategic plans



Teacher Certification

for Grades 7-12 teachers

providing support pathways for completing PRAXIS, inc. test reimbursemen't & stipends



TACTICS

Training & Consultation

A PLC for IU-based staff, who then offer technical ass't & prof. learning to their LEAs



ECEP Alliance

Expanding Comp Sci Ed

led PA's involvement in this national CS alliance; crafted PA's first CS landscape report



Virtual CoP

Community of Practice

Learning comm'ty for tchrs, admins; connects members to resources & partnerships

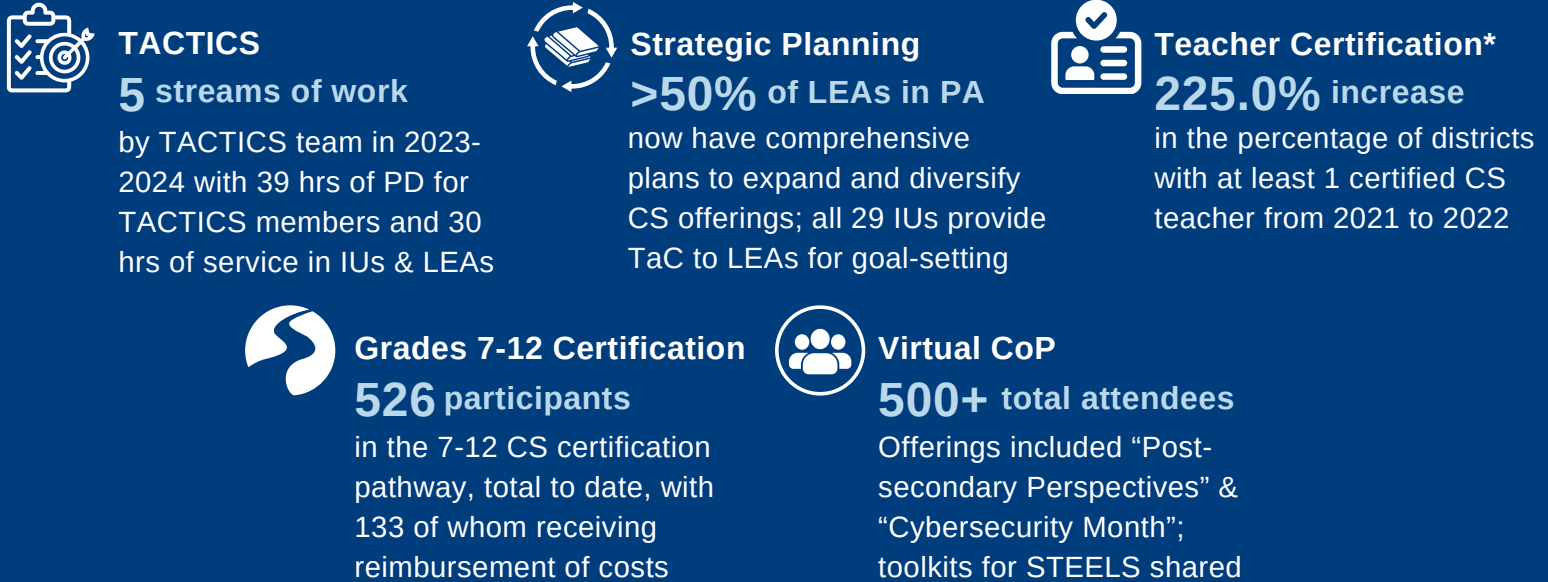
* For more details, see the CSinPA dashboard at <https://www.pattan.net/Supports/STEM/computer-science/Data-Dashboard>.

In 2023-2024, 21 IUs participated in the Training and Consultation to Implement Computer Science (TACTICS) team. TACTICS provides LEAs with support on making CS accessible and equitable for students with learning differences.

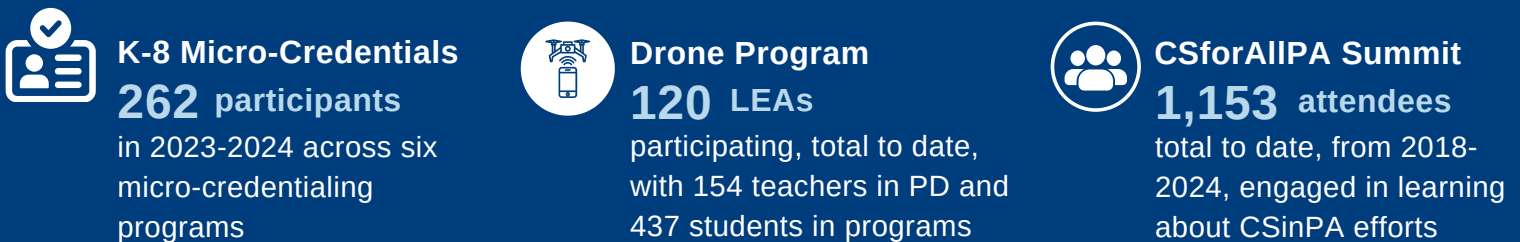
The Expanding Computing Education Pathways (ECEP) Alliance is an essential national alliance. PA's ECEP convened a workgroup with K-12 and higher education, government agencies, and the community to develop PA's first CS education "landscape report."



Key Metrics (as of Aug 2024)



Selection of Other Collected Data



CSinPA supports a host of innovative practices to diversify and expand CS access in PA. For instance, they provide toolkits for teachers on STEELS and CS standards crosswalks and other resources. They also pursue initiatives to: integrate CS and music, provide accessible curriculum to the FAA 107 Drones exam, work to reduce barriers to CS for students with learning differences and other specialized needs, facilitate "AI Think-tank" and "AI April Fool's Day" events, and engage in cyber-security campaigns.

* For more details, see the CSinPA dashboard at <https://www.pattan.net/Supports/STEM/computer-science/Data-Dashboard>.

“Prior to receiving this PD, I honestly can say I didn't incorporate CS....And then I learned, and I grew and, at this time, it's part of our everyday school day. This year, we built drones using the "Build-Fly-Code" program. So we've started from the beginning: we built them, we flew them, and now we're learning how to code them. (MS Teacher in CSinPA PD)

“My [autism support] students, honestly, told me that they were a bit bored with our social-skills lessons....and a lot of them had expressed interest in computer science....so I thought it was really important that we begin to embed that...and that just kind of like opened a lot of other doors and opportunities for the kids....And it really helped me step out of my comfort zone as their teacher. (HS Teacher in CSinPA PD)



RLD

Remake Learning Days Across Pennsylvania

Launched
Jul 2023

Primary Contacts

Dorie Taylor Tyler Samstag Yu-Ling Cheng

Partnership Team

Remake Learning



Participants & Reach

30,000+ PA students & families attending in 2024

886
events

500+
hosts
(in 7 PA
regions)

9,500
1st & 2nd
Graders in
discoveredED



Objectives

- Offer free events hosted by schools, museums, tech startups, & more
- Highlight opportunities for youth to develop creativity & curiosity
- Promote innovative, hands-on, relevant educational opportunities
- Include youth of all ages, families, & community members



Impact Measures (as of Jun 2024)



Engagement

81,700+ unique visitors and 112,700+ page views for "RLD Across PA" websites, showing significant interest (1/1/2024 to 5/31/2024)



Social Media Views

5.3 million potential social media impressions with #RemakeDays hashtag



Collaboration

30 training meetings for Ambassadors, as well as 103 Parent & Teacher and 51 Youth Ambassadors attending RLD events



Outreach

1,200 unique contacts made during Spring 2024, inc. outreach meetings (129), emails (77), & other marketing (22)



Press Coverage

77+ news stories on RLD events, prior to the 2024 festival, published by PA media outlets.



Artifacts

5,800+ completed artifacts at the CR Backpack Challenge and discovered design challenge event (226% growth over PY)

* This year's festival for Remake Learning Days occurred, globally, from April 20, 2024 to May 31, 2024. See <https://remakelearningdays.org/>. See also the 2024 video review: <https://tinyurl.com/rld-2024-overview>.

“

They're building skills that they will need until later in life in their careers. Things like problem-solving, collaboration, perseverance, and...creative thinking that we are going to need in the world.

— Cari (District Engineering Coordinator)

“

Remake Learning Days is a reminder of how learning can take place anywhere at any time and at any age. It is an opportunity for families to learn together and explore more in their local communities.

— Amanda (Director of K-12 Engagement)



PAsmart

State System of Support: STEM Statement of Work

Launched
2017

Primary Contacts

Kelsi Boyles Rebecca Gibboney Heather Heimer Ben Smith

Lead Team

PAIU



Participants & Reach

Number of days of intended support per IU

All 29 IUs

115 for
PoCs*

36 for
TaC*



Objectives

- Increase participation in K-12 STEM and Computer Science education
- Enhance STEM and Computer Science partnerships and programs
- Continue and expand support for the PA STEELS Standards
- Assist LEAs in scaling universally-designed STEM & CS learning



Impact Measures (as of Jul 2023)



Deliverable A

16 PoC + 6 TaC* days

Identify PoCs at each IU and assist implementing the STEM SOW; PoCs participate in network meetings and create resources for the network



Deliverable B

32 PoC + 10 TaC days

Support implementation of the STEELS Standards by assisting LEAs and building curriculum and assessment leadership capacity



Deliverable C

10 PoC + 8 TaC days

Collaborate with PaTTAN to support implementation of K-12 CS education and 7-12 CS Educator Certification



Deliverable D

5 PoC + 2 TaC days

Assist LEAs with student-centered, flexible learning models & equitable instructional experiences



Deliverable E

30 PoC + 2 TaC days

Convene diverse stakeholders to establish STEM & CS partnerships & create programs



Deliverable F

8 PoC + 4 TaC days

Develop local & state STEM & CS competitions and innovative learning camps



Deliverable G

10 PoC + 4 TaC days

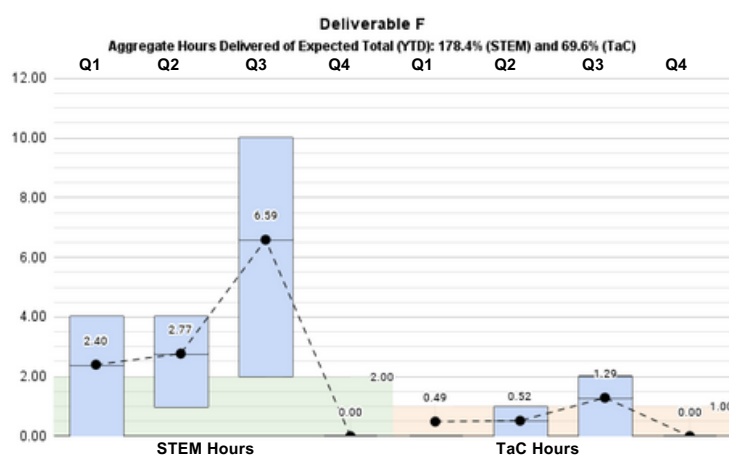
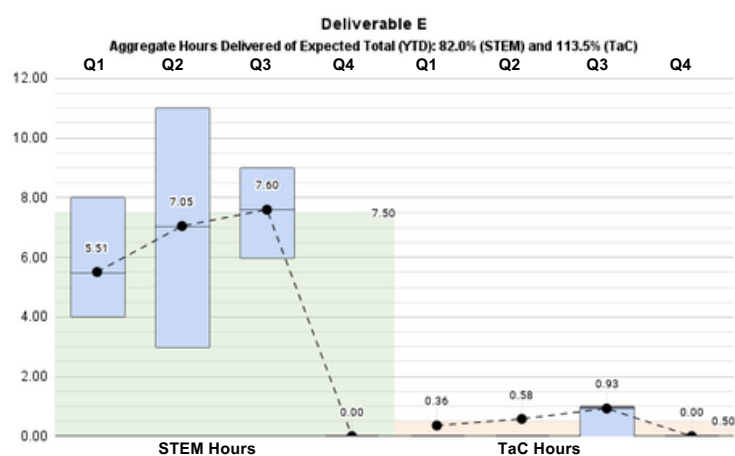
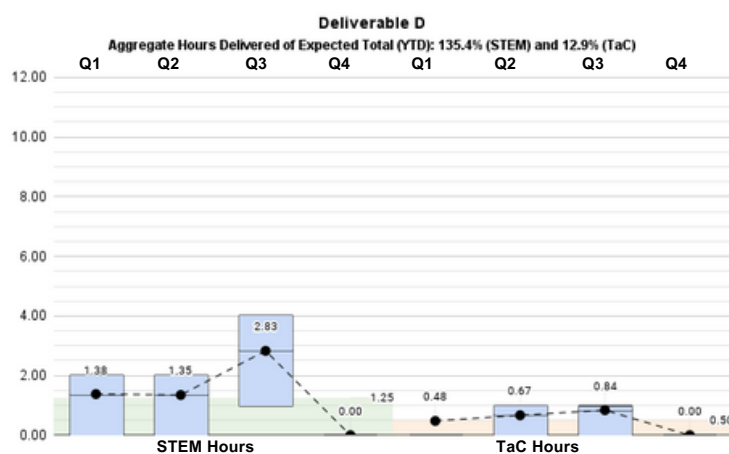
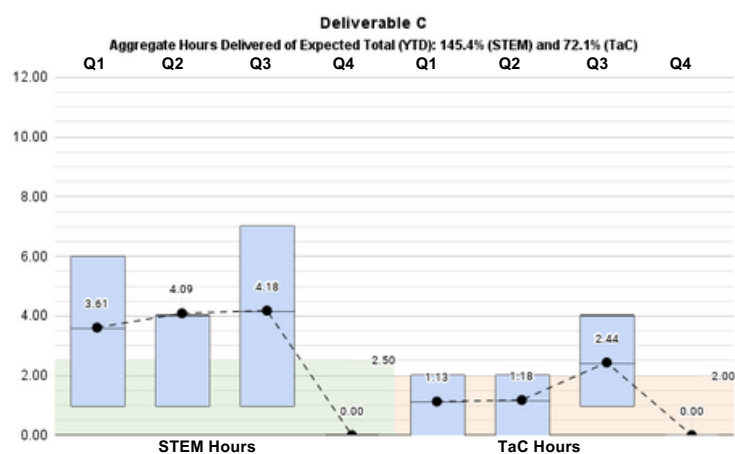
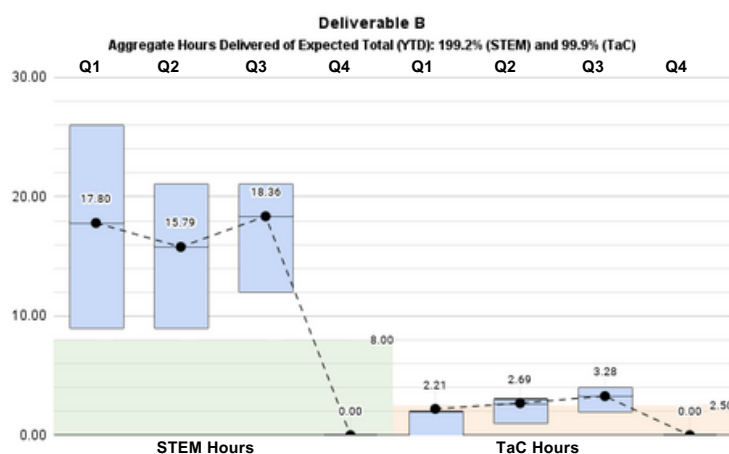
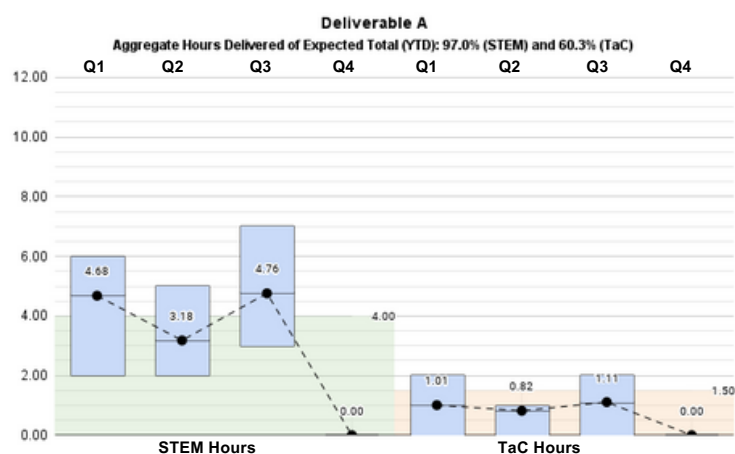
Provide support to LEAs by designing, delivering, and sharing coherent, integrative STEM resources that incorporate the Accelerated Learning Continuity of Education (COE) statement of work

* The PoC and TaC values, shown here, represent the intended allocation of time per IU (measured in numbers of days) for the STEM Point of Contact (PoC) and Technical Assistance Components (TaC). These values are average amounts within a range (e.g., 6-10 recommended PoC days is shown as 8 PoC here).



SSoS: STEM SOW

Distribution of Delivery Hours by Quarter (Aggregate PA)

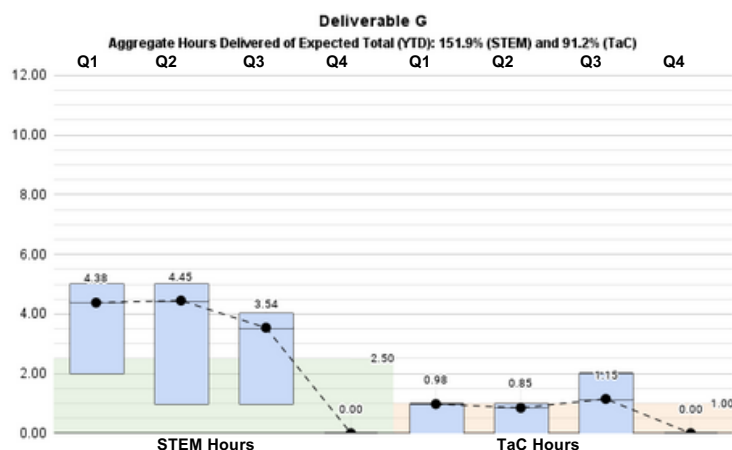


Notes

Each chart above shows the interquartile range (i.e., 25th and 75th percentile) of recorded delivery hours by the 29 IUs in PA by quarter for both the STEM hours and the TaC hours. The mean number of delivery hours is also plotted.

Green and orange boxes show the expected mean number of hours for each quarter of the year for both STEM hours and TaC hours by deliverable.

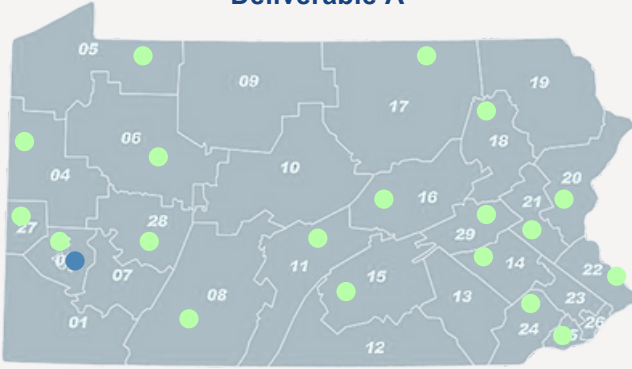
Finally, the proportion of the expected year-to-date totals, by deliverable, is shown in the chart subtitle.



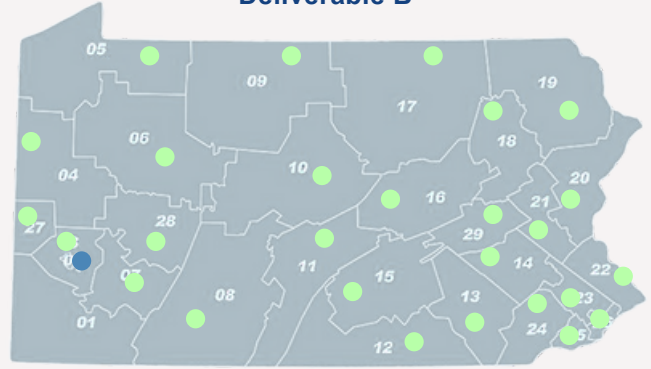
SSOs: STEM SOW

Outliers in Year-to-Date Delivered Totals Compared to Expected (STEM Hours by IU)

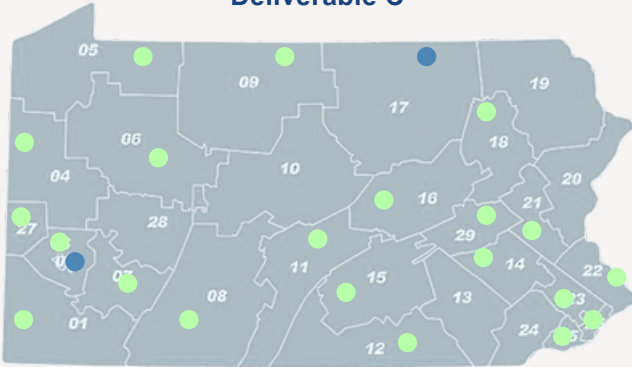
Deliverable A



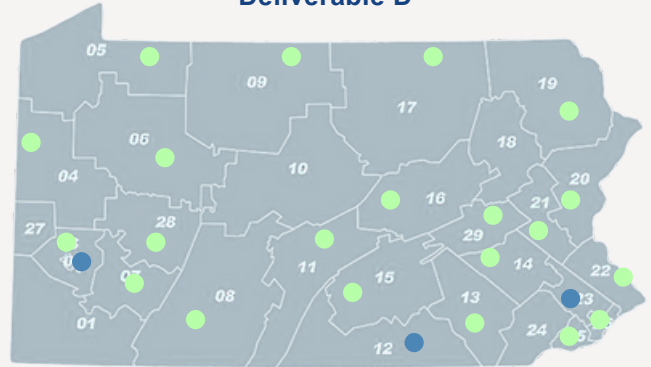
Deliverable B



Deliverable C



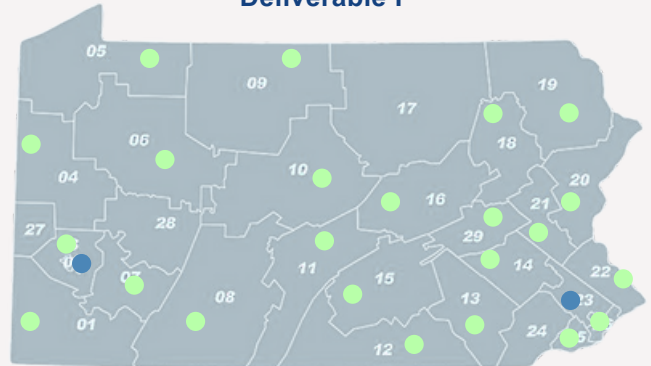
Deliverable D



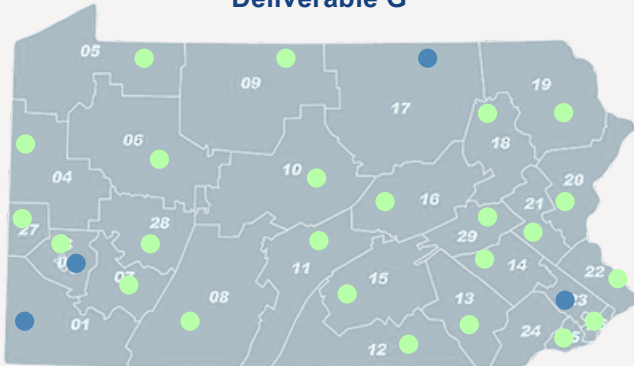
Deliverable E



Deliverable F



Deliverable G



Key and Notes

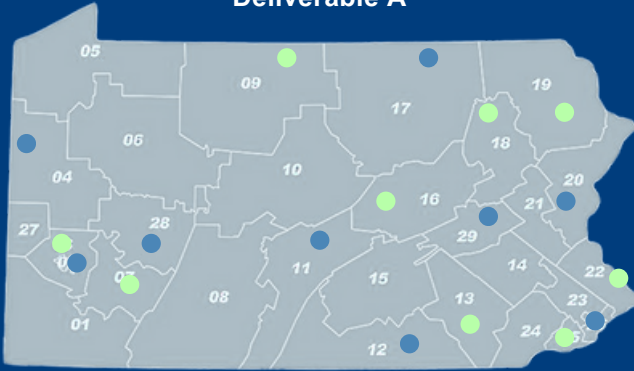
Year-to-date totals were tabulated by IU and for each deliverable. Further, also year-to-date, the expected number of hours for each deliverable were tabulated. For example, if Deliverable A STEM hours are supposed to be 16.00 hrs for 2023-2024, then the year-to-date expectation after Quarter 3 would be $(0.75)(16.00) = 12.00$ hrs.

- > 80% of expected year-to-date hours (STEM)
- < 30% of expected year-to-date hours (STEM)

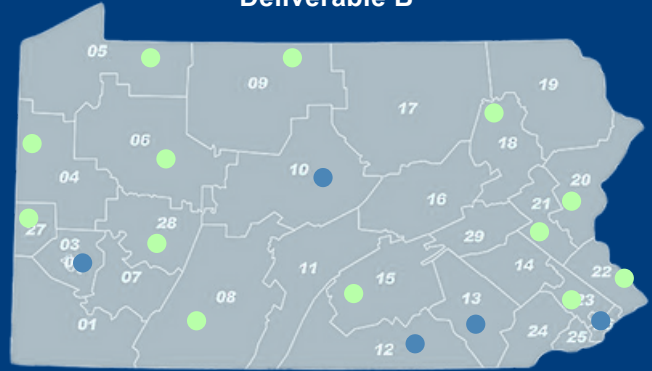
SSOs: STEM SOW

Outliers in Year-to-Date Delivered Totals Compared to Expected (TaC Hours by IU)

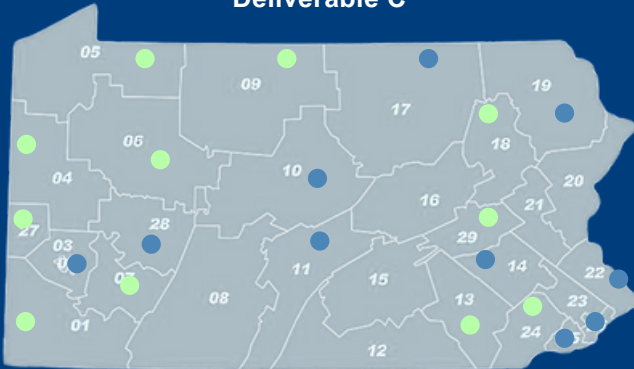
Deliverable A



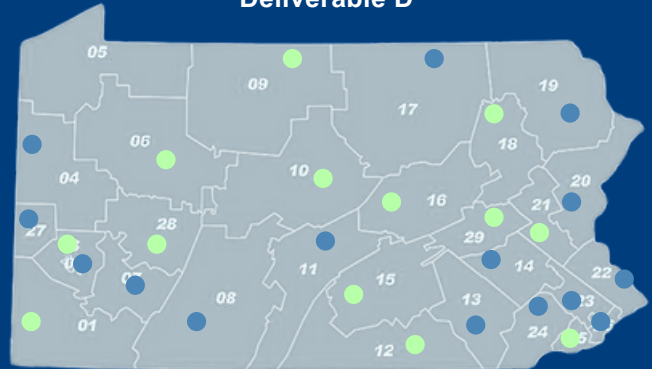
Deliverable B



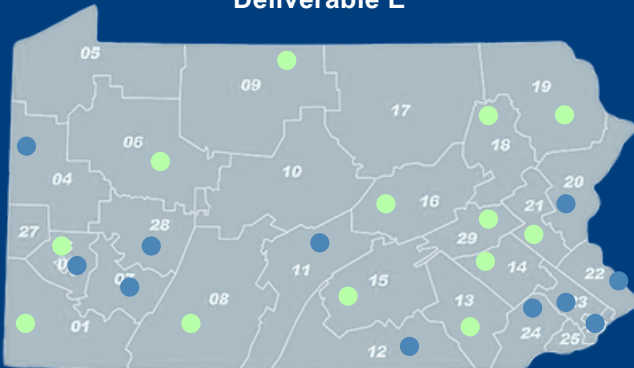
Deliverable C



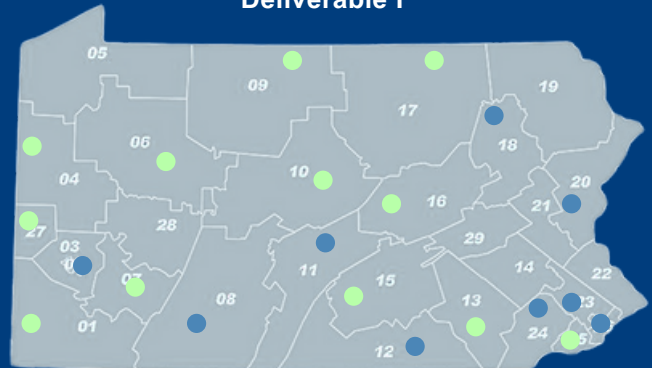
Deliverable D



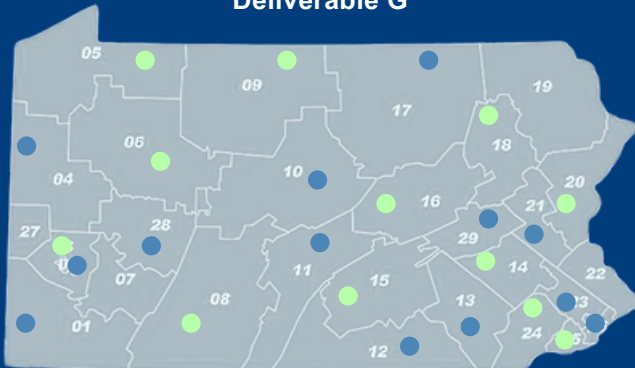
Deliverable E



Deliverable F



Deliverable G



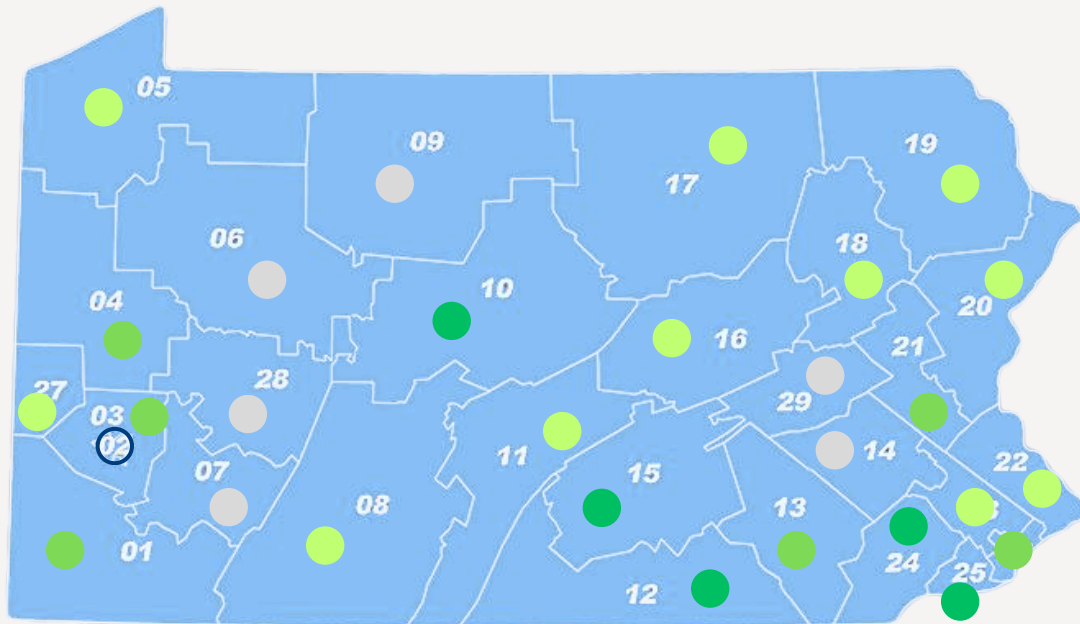
Key and Notes

Year-to-date totals were tabulated by IU and for each deliverable. Further, also year-to-date, the expected number of hours for each deliverable were tabulated. For example, if Deliverable A STEM hours are supposed to be 16.00 hrs for 2023-2024, then the year-to-date expectation after Quarter 3 would be $0.75 \times 16.00 = 12.00$ hrs.

- > 80% of expected year-to-date hours (TaC)
- < 30% of expected year-to-date hours (TaC)

SSoS: STEM SoW

Number of Students Served per Participating Educator (Year-to-Date Delivered Totals)



IU	Students per Educator	IU	Students per Educator
Intermediate Unit 1 IU1	76.7	Central Susquehanna IU16	43.8
Pittsburgh-Mount Oliver IU2	N/A	BLaST IU17	65.3
Allegheny IU3	78.9	Luzerne IU18	56.7
Midwestern IU4	87.1	Northeastern Educational IU19	65.2
Northwest Tri-County IU5	55.1	Colonial IU20	40.0
Riverview IU6	13.9	Carbon Lehigh IU21	86.3
Westmoreland IU7	21.7	Bucks County IU22	41.9
Appalachia IU8	51.0	Montgomery County IU23	54.7
Seneca Highlands IU9	11.0	Chester County IU24	109.3
Central IU10	288.9	Delaware County IU25	256.5
Tuscarora IU11	58.6	Philadelphia IU26	89.9
Lincoln IU12	209.2	Beaver Valley IU27	40.2
Lancaster-Lebanon IU13	72.7	ARIN IU28	22.2
Berks County IU14	13.5	Schuylkill IU29	4.4
Capital Area IU15	333.0		

Key and Notes

Each IU reported the number of educators served (in total) through STEM and TaC hours. The total student enrollment for each IU was obtained from the PA Dept of Education for 2023-2024. This chart and table show the ratio of students per educator served (year-to-date).

- < 35.0 students per educator served (less than one classroom)
- 35.0 - 70.0 students per educator served (between one and two classrooms)
- 70.0 - 105.0 students per educator served (between two and three classrooms)
- >105.0 students per educator served (more than three classrooms)

CSO Program

Pennsylvania's Chief Science Officer (CSO) Program



Partnership Team

MCIU & PAIU

Primary Contacts

Stephanie Schwab

Launched

Jul 2019

Objectives

- Cultivate a diverse network of student STEM leaders
- Foster student engagement in STEM & collaboration among CSOs
- Enrich school STEM cultures and raise STEM-career awareness
- Amplify voices of students in the community for STEM education



Participants & Reach

In 2023-2024, the CSO program grew

25 IUs
involved

311
student
CSOs

86 LEAs
represented



Impact Measures (as of Jun 2024)



Participation*

5x and 3x growth in the number of students (5-fold growth) and the number of districts (3-fold growth) since the beginning



Networking

102.30% increase in CSOs agreeing that the program has improved the reach of their peer and mentor network



Leadership

84.2% increase in CSOs saying they are "extremely" or "very" prepared to lead STEM-related community projects



Year-Round Support

45 total hours per CSO in leadership training (12 hrs), bi-weekly advisory meetings (15 hrs), and meetings with the CSO Cabinet (12 hrs).



Advisor Experience

"As an educator, this program opened my eyes to the important and impactful roles that students can and do play in the advancement of our communities." (CSO Advisor)



Partnerships

95+ partnerships
In Fall 2023, each IU facilitated partnerships with STEM organizations; in total, 95+ orgs were represented in this effort

* Learn more about the CSO Program at <https://tinyurl.com/cso-overview>.

“

[My daughter] has gained so much more confidence when collaborating and speaking with others. The CSO program has definitely lit a spark and fueled her interest in STEM activities and programs!

— Parent of a CSO

“

As a result of being in the CSO Program I have been able to more consistently and effectively convey the importance of having a healthy understanding of today's technology to my peers and those students who are younger than myself.

— CSO Alum





ELS & MWEE Network



Environmental Lit Standards & Meaningful Watershed Env Education Network

Partnership Team

Millersville U

Primary Contacts

Tamara Pepper

Michelle Salvitti

Steve Kerlin

Launched

2020

Objectives

- Identify environmental literacy facilitators at each IU
- Train each IU in environmental literacy education
- Connect IUs with local, STEM-rich, collective-impact partner
- Build capacity of IUs to assist LEAs in implementing the EL&S Standards



Participants & Reach

PA's Env Lit Network supported by

6 regional hubs

27 IUs with Facilitators and/or Ambassadors

5 organizat'l contributors*

* Millersville U, Stroud Water Research Center, Two Roads Consulting, PA Dept of Education, & National Oceanic and Atmospheric Administration



Impact Measures (as of May 2024)



Baseline Data* (2022)

69.7% increase

in the proportion of survey respondents (formal & non-formal educators) aware of the MWEE framework



Strategic Planning

26 IUs

plan to sustain environ. literacy standards, including STEELS integration by training educators directly



School Support

42.5% of IU grants

spent on direct support of teachers or students (from the \$25k allocated to each participating IU)



Expand

PA's ELit Network

by formalizing roles, sharing MWEE work, holding yearly summit, growing facilitators



Prof Development

implementation includes

lesson resources, assessment toolkits, alignment workshops, and support for ACT 45 & CTE



Collaboration

402 PA LEAs

partnered with IU Ambass. in prof develop, site visits, meetings, and workshops

* For more details on MWEE, see <https://www.chesapeakebay.net/what/publications/meaningful-watershed-educational-experience>. For needs analysis, consult Millersville University of Pennsylvania. (2022). "2022 Status and Needs of Non-Formal and Formal (K-12) Environmental Educators Across Pennsylvania."

“

[N]on-formal educators felt confident leading professional development and training in general watershed education...[but] national and state curriculum...is a subject area that has been identified by formal educators as topic that they would like access to training sessions....

— 2022 PA Status & Needs Report (p. 15)



Launched
June 2021

Primary Contacts

Vanessa Wolbrink Jenny Sarna

Partnership Team

WestEd



Participants & Reach

29 IU teams & 14 community partners

70
teacher
leaders

180
total
members

90
districts



Objectives

- Collect data on current status of science programming in PA
- Develop a shared vision for high-quality science instruction
- Understand features of high-quality professional learning
- Provide ongoing strategic support via coaching & partnership



Impact Measures (as of Jan 2023)



Baseline Data (2021)

39.7% of respondents' selections for "ideal instruction" in science were aligned with the research-based framework* (1,493 teachers surveyed)



Vision for Instruction

13.6% avg increase in respondents' selections for ideal instruction that aligned with the framework



Professional Dev

311.8% increase in proportion of members participating in 8+ hrs of PD on shifts in instruction



Strategic Planning

387.5% increase in participants' engagement in district planning sessions to incorporate the framework



Collaboration

78+ activities full- or part-day events were held as part of the network from Jun 2021 to Apr 2024



Participant Ratings

99% agreed (or strongly agreed) the Fall 2023 meeting gave valuable knowledge

* National Research Council (2012). *A Framework for K–12 Science Education: Practices, Crosscutting Concepts, and Core Ideas*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/13165>

“ —

I want to thank the team behind PennSEL because I cannot imagine where educators would be without these meetings. PennSEL allows educators... to learn from each other and become leaders.

— Program Participant

“ —

I am incredibly grateful for this network. This is my primary source of science training and this network has allowed me to support teachers and administrators in my region in ways that I would not have been able to.

— District Leader



Launched
2021

Primary Contacts

Leann Cox

Bob Welsh

Partnership Team

PaTTAN & RIU6



Participants & Reach

About 10 in-person workshop series in schools & IUs

60+
teachers

1,500+
students

10+
online
toolkits



Objectives

- Establish partnerships between educators and artists
- Create tools for educators & families that support the social-emotional wellness of young learners
- Engage young learners in music and movement, connecting with the STEM & CS curriculum



Program Outcomes (as of May 2024)



STEM Focus

3 themes

explored in songs on engineering, motion (physics), and environm. lit.
3 downloadable lessons



CS Focus

4 songs

describing principles of computer science
with downloadable lessons

* See also the profile on ABC27 at:
<https://tinyurl.com/brightnow-abc27>.

Make Things Better

Ask, imagine, create, and improve
That's what engineers are always trying to do
Ask, imagine, create, and improve
Solving problems, building teams too
Ask each other when you work together
How to make a thing that makes things better

When you build a model of something new
Listen to your teammates, they can help too
You might have to try, again and again
If you stick with it, you're going to win
Ideas come and ideas will go
Just keep on trying that's how they grow

See BrightNow's music, movement, and lesson resources for PA at:

- a) STEM - <https://oercommons.org/courseware/lesson/109013/overview>
b) CS - <https://www.pattan.net/Supports/STEM/computer-science/CS-Educator-Toolkit/Lesson-Resources/Music-Integration-Toolkit/cs-songs>



(Tepsich & Welsh, 2021)

Chorus

**Make things better
Imagine something new
Make things better
Create a model and test it too
Make things better
Always something you can improve
Solving problems for me and you
That's what engineers do**

“

When [BrightNow's Tepsich] works with my students, he provides them with skills necessary to survive in and out of school. He allows them to listen to each other, work as a team, and encourage each other.

— Kristen (Teacher)

Two BrightNow team members were nominated for "2024 Central PA Music Hall of Fame" in the category of "Best Kids & Family Artist." BrightNow's Serio won the 2024 award, and Tepsich is a past winner!





STEP with EbD

Supporting Technology & Engineering in PA with Engineering



Partnership Team

IU13

Primary Contacts

Brandt Hutzel Keith Royer

Launched

Jan 2022

Objectives

- Utilize the Engineering byDesign program in PA, to support STEELS (K-5) and the PA Tech and Engineering (6-12) Standards
- Provide teacher training to scale constructivist models in problem-/project-based instruction



Participants & Reach

Trained 147 educators across PA since Summer 2022

6 four-day workshops

30+ hrs per person in training

241+ LEAs reached



Impact Measures (as of Mar 2024)



Curriculum Spread

431 educators

have requested access to the EbD curriculum (across 241 unique LEAs)



Grade Bands

3 grade bands

of summer STEM training for teachers in elementary, middle, and secondary school (30+ hrs/person)



Advanced Placement

60 hours

of summer training for secondary teachers in Advanced Placement in Computer Science byDesign



Coaching

8 educators

trained as Authorized Teacher Effectiveness Coaches (ATECs)



Online Resources

Unlimited

participation in virtual training & unlimited access to the EbD LMS



Technical Support

Crosswalks & LMS Support for STEELS and the PA Technology and Engineering Standards

* More detail on the EbD curriculum--both its content and design principles--can be found at: <https://www.iteea.org/engineering-bydesign>



Access the free, K-12 *Engineering byDesign* curriculum here (or navigate here, <https://tinyurl.com/ebd-for-pa>). Note that EbD includes an LMS, all course updates delivered online, interactive media, and online pre- and post-assessments.



Launched
???

 Primary Contacts
Scott McDonald

 Partnership Team
PSU


Participants & Reach

4 streams of work across 4 PLC teams
(6-11 meetings per team)

34 PLC
meetings

37 total
participants
from IUs

74 hrs
of PD

✓ Objectives

- Support STEM PoCs at IUs via a community of adult learners
- Help district administrators learn about STEELS & aligned teaching
- Promote teaching that is responsive to student cultures and ideas
- Identifying scaffolding and support for teachers of special learners



Impact Measures (as of Jun 2024)



Leadership

17.0 PLC hours (total)

The PLC discussed models of change management and how these can be utilized; the work culminated in a workshop for school leaders in the Pottstown Area School District in June 2024



Culture

16.5 PLC hours (total)

The PLC discussed how to support teachers in drawing on student cultures and ideas; the work culminated in the building an online repository for sharing materials with IU staff



Special Needs

21.0 PLC hours (total)

The PLC studied Universal Design for Learning and Ambitious Science Teaching and how to support teachers in shifting practices; the work culminated in the creation of slides entitled "Supporting All Students in Successfully Engaging in PA STEELS" for future professional learning sessions around these topics



Assessment

19.0 PLC hours (total)

The PLC reviewed the WestEd Assessment Toolkit and developed modifications for PD sessions of 1-4 hours in length; the work culminated in creation of a "Gotta-Have" checklist for shorter PD sessions and endorsed the Toolkit for longer sessions

“ —

We led a 3-day workshop using the AMNH Tool B for teachers...a NGSX for Principals.... We led 3x 1.5-hour sessions for a district for their elementary teachers on "Introduction to STEELS and 3D Learning." We also led some Design Thinking workshops.
— Sara (STEM PoC on PARSE impact)

“ —

We offered an asynchronous course on the foundations of three dimensional learning and phenomena, and I did the "Mt . Everest Immersion" experience with one of my districts.
— Stephanie (STEM PoC on PARSE impact)





Partnership Team

PSSE

Primary Contacts

Alexandra Konsur-Grushinski

Stephanie Schwab

Launched

Jul 2017

✓ Mission

Through purposeful cooperation and collaboration, PSSE facilitates cross-sector convenings, amplifies STEM education resources, drafts policy recommendations, and stewards a community of practice centered on equity, inclusion, and belonging in quality STEM education and workforce development.



Participants & Reach

12+ PA-recognized STEM Ecosystems

1000-
member
STEM
Coalition

29 STEM
PoC's at
each IU

Bi-monthly
Meetings



Ecosystem Reach (as of Jul 2024)



Mailing List

1,065 total members (~20% increase)

Business/Industry (5.8%)

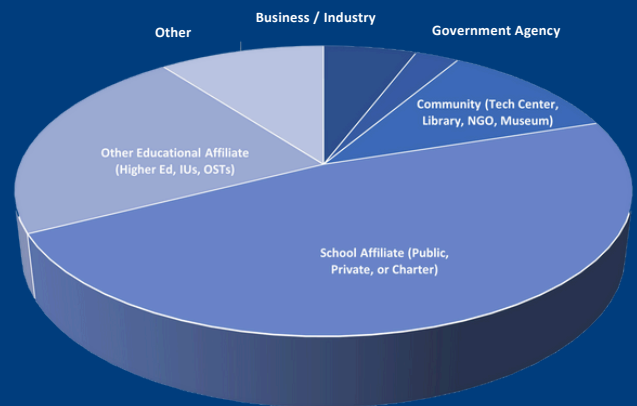
Government Agency (2.7%)

Community (Tech Center, Library, NGO, Museum) (11.5%)

School Affiliate (Public, Private, or Charter) (47.5%)

Other Educational Affiliate (Higher Ed, IUs, OSTs) (22.2%)

Other (10.3%)



Policy Memo Work Products

"STEM Teaching & Learning" (for Pres. Biden's administration)

"Revolutionizing STEM Learning in Pennsylvania" (for Gov. Shapiro's administration)*

"Press toolkits and other distribution tools for policy memos"***

* See <https://tinyurl.com/psse-shapiro>.

** See <https://tinyurl.com/psse-toolkit>.

An independent evaluator, PEAR, has noted PSSE meets the basic criteria for achieving collective impact and now has structures to enhance that impact. They recommend supporting STEM Ecosystems as a community of practice (CoP). Survey & focus group results show satisfaction with the CoP and communication strategies.

“

So, I think there's things and procedures and policies that we've developed as we've evolved to try to make that more the reality of each ecosystem or network getting an equal voice.

— PSSE Leadership Team Member



Launched
Jul 2023

Primary Contacts

Betsy Payne

Partnership Team

PEF



Participants & Reach

Direct communication for 9,300+ STEM education professionals

90+
teachers

6
programs

3,700+
students

Objectives

- Support the Philadelphia STEM Ecosystem and its initiatives
- Support the expansion of the Chief Science Officers (CSO) Program
- Create and run STEM workforce development programs
- Support in-school & OST educator development in STEELS standards



Impact Measures (as of Mar 2024)



STEM Ecosystem

4 Workgroups on

Comp Sci, Sustainability, Prof Development, & STEM Teacher Talent Development; serving as a STEM incubator & connector



CSO Program

5 students in 2 schools

promoted attendance at Leadership Training, visiting STEM organizations, & learning about STEM careers



Explore STEM Philly

25 STEM professionals

met with 25 STEM teachers, to learn about STEM workforce development



PASE After-school

600 students

impacted by collaboration between 20 STEM professionals & 20 STEM after-school instructors on integrative STEM activities



STEELS Training

2,050+ students

impacted by offering intensive STEELS training to 28 teachers & providing curriculum materials



RISE Industry

Data gathering

Engaged with CTE students & workforce development orgs to design frameworks & surveys for gauging STEM/STEAM pathways

