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GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF LABOR AND ECONOMIC DEVELOPMENT
LANSING

SUSAN CORBIN
DIRECTOR

MEMORANDUM

DATE: October 16, 2023

TO: The Honorable Winnie Brinks Senate Majority Leader
The Honorable Aric Nesbitt Senate Minority Leader
The Honorable Joe Tate Speaker of the House
The Honorable Matt Hall House Minority Leader

FROM: Megan Schrauben, Executive Director
MiSTEM Network
Department of Labor and Economic Opportunity

SUBJECT: MiSTEM Advisory Council FY 24-25 Annual Recommendations

Pursuant to Section 99s (2) of The State School Aid Act of 1979, 1979 PA 94, as amended, MCL 388.1699s, please find attached the MiSTEM Advisory Council FY 24-25 Annual Recommendations.

Should you have any questions, please contact Todd Cook, Director of LEO Legislative Affairs at 517-230-8900 or CookT15@michigan.gov.

cc: Kristiane James, Executive Office of the Governor
MiSTEM Advisory Council Legislative Members
Senator Dayna Polehanki
Representative Brad Paquette

Advisory Council Recommendations 2024-25

2024 Actions: Improvement & Growth

The MiSTEM Advisory Council is charged with setting the strategic vision for STEM education in Michigan and moving that vision to action through the MiSTEM Network. Together, we are transforming STEM learning, making it more accessible across the state and striving to be the catalyst for authentic STEM experiences in every community in Michigan.

The MiSTEM Network continues to grow the STEM ecosystem in Michigan, connecting and convening those involved in PK-20 STEM education and workforce development. **We are energized by the impact we have made in the past year and are motivated by the shared alignment around grant administration and programming improvements for FY 2024.**

In 2024, the Council will strengthen the internal operations of the MiSTEM Network, including improvements to grant administration and evaluation and continued collaboration between the Council and Network. The Network will also continue to focus programming across Michigan on the development of authentic **problem-, place- and project-based learning (3P).** This will set the stage for accelerating the culture of STEM by effectively and efficiently scaling best practices statewide.

Recommendation 1: Grant Administration & Evaluation Improvements

MiSTEM Advisory Council grants are awarded annually to deliver STEMworks programming, educational services and training to school districts, intermediate school districts (ISDs) and participating universities. These grant-funded programs are focused on educator professional learning and STEM student programming through 3P learning. Our focused efforts in these areas are resulting in innovative, integrated STEM learning experiences for Michigan's youth and future workforce.

Through its 16 regional hubs across Michigan, the Network administered **nearly $5.3 million in grants, donations and in-kind resources** from ISDs, K-12 schools, higher education institutions, state and national grants, foundations, nonprofits and workforce development organizations. These grants were invested to support four strategies that guided Network activities in 2022-23:

- Transforming STEM through 3P learning opportunities.
- Creating business-community-education STEM partnerships.
- Building equitable, inclusive change by investing STEM resources and opportunities in places with demonstrated need.
- Scaling STEM successes in our regions related to MiSTEM goals and culture.

The activities and services through our statewide STEM strategy are measured in great depth by external evaluators and inform our program strategy and implementation. Our grant evaluations, performed by Science and Mathematics Program Improvement and the Center for Education, Design, Evaluation and Research, detail our successes for 2023, with a highlight of **notable increases** in:

- The delivery of 3P experiences for teachers and students, with increases in activities targeting teachers and students.
- Students and teachers served from populations underrepresented in STEM.
- Educator learning efforts to scale STEM successes, as well as in- and out-of-school experiences for youth to improve STEM skills and knowledge.
- Partnerships with community organizations, businesses, PK-20 teaching staff, higher education institutions, nonprofits and school districts.
- Leveraged funding for regional grant-supported activities.

This progress in STEM education in Michigan is vital — a strong foundation and infrastructure that continues to engage partners that are invested in youth, STEM education and workforce development. **We must continue to strengthen the Network through data-driven solutions and actions that get results.**

In 2024, the Council recommends continued efforts to:

1. **Improve data collection and evaluation,** particularly identifying the best measures to more directly link MiSTEM efforts to educator and youth accomplishments, as well as state-level outcomes. Considerations include:
    - Setting baseline goals that align with the Michigan departments of Education's and Labor and Economic Opportunity's strategic plan goals and intended impact.
    - Evaluating the threshold for investment and impact for STEM innovations to take root and be sustained.
    - Continuing to assess the scope of grant program evaluation to provide greater insight into the work of grantees and the impact of their programs.
    - Organizing measurement around regional needs and programming to align with the Network's needs-driven model.
    - Continuing to address disparities across the system and prioritize progress toward growing equity and equitable access in STEM programming.
    - Establishing common language and calculations to quantify and provide effective monitoring for in-kind, leveraged and pursued support.
    - Continuing to develop and pilot tools to measure student awareness, interest and perception of STEM careers, as well as educator self-efficacy on teaching STEM content, to help inform planning and improvements.

2. **Strengthen connections between the MiSTEM Advisory Council and the Network.** Our regional network is a powerful asset — a key driver in developing local solutions to STEM education in our communities. Similarly, our Advisory Council has a powerful voice, connections and expertise that help extend and amplify this success. Through shared learning and open dialogue, the Network and Council will continue to scale breakthrough solutions that benefit all students in Michigan.

Recommendation 2: Programming Growth & Expansion

The Network will also **continue to align all grant criteria and associated activities on authentic problem-, place- and project-based learning** to develop and implement STEM experiences. Specifically, the following activities are critical to connecting educators, youth and businesses; growing career-ready training pathways; and helping prepare youth to join the STEM workforce.

1. **Grow educator and youth externship, internship and apprenticeship models.** These should be connected to career clusters, educator professional learning that already has gained capacity in the state, as well as PK-20 youth pathways.

2. **Encourage the connectedness between educator professional development programming sessions and STEM-based careers.** There are several overlapping viewpoints and goals for

professional learning. Some viewpoints center on learning skills for a specific entry-level job, while others define career readiness as a broader understanding of workplace skills. Still other definitions focus on knowledge and skills for a particular industry sector. Career readiness is a convergence of these viewpoints, requiring new models of professional development to ensure training effectively demonstrates pathways that connect education and employment.

3. **Continue to create and deploy MiSTEM Playbooks** to help local community leaders reimagine the STEM learning environment in Michigan. Playbooks provide a road map for designing and implementing 3P learning for students in grades PK-20. Each playbook includes real-world examples, advice, resources and best practices to bring STEM learning to life. For example, see how this freshwater-focused model uses the tools of place-based education to connect schools with the communities they serve.

4. **Champion investment and partnership in STEM education** that increase student engagement and achievement, expand access to work-related experiences and connect employers with skilled talent to fill in-demand jobs. The recent investment of Toyota's "Driving Possibilities" STEM initiative in Michigan was a result of the close collaboration of the MiSTEM Network and active participation with the MEDC Talent Action Team. It includes the creation of a STEM institute at Eastern Michigan University for Ypsilanti and Lincoln Consolidated school districts. It also includes partnership with Washtenaw Community College and Washtenaw Intermediate School District to develop an integrated K-12 STEM model. The MiSTEM Network Strategic Partnership team will continue to collaborate with state partners across Michigan to identify, connect and create innovative partnerships that allow us to align industry and education partners and scale regional successes statewide.

5. **Inspire STEM engagement.** Key findings from survey research commissioned by the MiSTEM Network (2021) demonstrates a critical need to expand access and inspire engagement. The most notable findings:
   - Only 8% of children are participating in STEM learning both inside and outside of school — where they can integrate academic learning with real-world challenges.
   - Households earning under $35,000 were most likely to report that their children did not participate in any STEM learning.

   With all MiSTEM grants focused on increasing equitable access to 3P learning, it will be imperative to inspire engagement in these activities — particularly in Michigan's most minoritized communities. We want **all** youth in Michigan to find belonging in STEM and connect with careers that will fuel their future. The MiSTEM Network will promote authentic STEM experiences that not only inspire youth to engage in STEM but also connect their learning to career pathways in the high-wage, high-demand jobs of tomorrow. Our efforts will also motivate educators, families, employers and communities to collectively engage in this evolved learning model.

These actions are evidence of how the MiSTEM Network helps to create and support school, community and business partnerships; expose and prepare students for future career opportunities; and grow the next generation of critical thinkers to identify and solve complex problems in their community.

We are just getting started.

The MiSTEM Advisory Council is committed to making Michigan a world leader in STEM education and ensuring a rich STEM experience for all students, particularly from populations that are traditionally underrepresented in STEM careers. Research has shown that we can produce better outcomes using this statewide STEM strategy, but **we must take aggressive action to help our systems truly transform.**

2025 Investment: Acceleration

The MiSTEM Advisory Council and the MiSTEM Network are ready to meet the challenge.

We have laid the groundwork through our grants, playbooks, strategic partnerships and community networks, and are poised to scale best practices statewide effectively and efficiently. With the appropriate investment, we can successfully accelerate the culture of STEM and STEM learning opportunities throughout Michigan with the 3P model — the **greatest lever in bringing high-quality STEM experiences through the MiSTEM statewide STEM strategy**.

The investment requested for 2025 would rapidly scale this model in each of our 16 regional communities with the creation of **STEM Accelerator Schools.** It would allow for critical stakeholders across various education, economic and talent development systems to develop plans, strategies and tools for spreading 3P learning across Michigan. It would evaluate the impacts on educational and economic outcomes and build the sustainable measures and knowledge to help other communities scale for the future.

Our proposal:

- Appropriate $100 million over the course of four years to fully fund demonstration sites for implementing the statewide STEM strategy. This amount is similar to the School Improvement Grant work administered through the Michigan Department of Education that provided three-year grants for priority schools to complete a turnaround model.
- Each of our 16 regional community networks would work with partners to create at least one elementary, one middle and one high school that will serve the same cohort of students as they progress through the district and will holistically incorporate cross-curricular 3P STEM learning into tier 1 instruction throughout a school building.
- The program would select community-driven applications (families, students, educators) and include partnerships with local PK-20 schools; researchers and educational partners; out-of-school-time partners; business partners and professional organizations; workforce and economic development agencies; culturally focused or faith-based organizations; and philanthropic groups.
- The impact of this program would be measured by (and be expected to impact):
  - Consistent exposure across curriculum to high-quality 3P instruction.
  - Equitable growth in student knowledge and interest in STEM careers.
  - Teacher knowledge about STEM careers for students.
  - Student participation in advanced coursework, STEM achievement and postsecondary credentials.
  - Business-community-education partnerships around STEM learning and careers.

An exemplary model with a similar approach is the P-20 Partnership — a landmark cradle-to-career educational partnership that is one of the first of its kind in the nation. The program at a glance:

- Located on the Marygrove College campus in northwestern Detroit.

- Project- and place-based curriculum that engages students in community-based and social justice-oriented learning opportunities.
- Mission to create singular school space in which every adult in the building has two goals: children's rich and robust learning and the education of urban teaching professionals.
- Site of the nation's first teaching school, which includes a novel three-year residency program for novice teachers inspired by the medical model of professional education.
- On-site childhood centers for ages birth to 5 years.
- Support services (e.g., counseling, health, dentistry) that attend to the "whole child."
- Collaboration with multiple partners and stakeholders, including Detroit Public Schools Community District, The Kresge Foundation, Starfish Family Services and the Marygrove Conservancy.

Be prepared to be inspired by this groundbreaking program where informed STEM learning, teaching and cutting-edge 3P innovation are happening in Detroit and our public schools. Watch video (less than 3 min.).

On behalf of the MiSTEM Advisory Council, we are grateful for your attention to our proposed recommendations. We are committed to meeting Michigan's education and workforce goals, with the support of our dedicated partners and advocates. With this critical investment, we will accelerate meaningful and measurable impact for our schools, educators and youth, workforce and communities.