STEM Council Meeting

April 17, 2019

Dr. Andrew Melin
Chief Innovation Officer
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>1:30 p.m.</td>
<td>Welcome and Introductions</td>
<td>Dr. Andrew Melin</td>
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<td>Chief Innovation Officer</td>
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<tr>
<td>1:40 p.m.</td>
<td>Opening Comments</td>
<td>Dr. Jennifer McCormick</td>
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<td>Superintendent of Public Instruction</td>
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<tr>
<td>1:50 p.m.</td>
<td>STEM Playbook Presentation</td>
<td>Dr. Andrew Melin</td>
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<td>Chief Innovation Officer</td>
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<td>2:25 p.m.</td>
<td>Group Input/Feedback</td>
<td>Ben Carter</td>
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<td>Director of Workforce and Innovation</td>
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<td>2:55 p.m.</td>
<td>STEM Organization and Future Meetings</td>
<td>Ben Carter</td>
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Welcome & Introductions

- Welcome
- Introductions
  - STEM Council Members
  - IDOE Team
STEM Accomplishments

- STEM Acceleration Grants
- STEM Certified Schools
- Robotics
- Computer Science
- Cybersecurity
- Digital Learning Grants
- Summer of eLearning
• Round 1: $910,000
  11 school districts

• Round 2: $546,469
  14 school districts
60 schools have been certified to date

5th cohort will be certified in May
Robotics

- 1013 Elementary VEX IQ teams
- 440 Middle School VEX IQ teams
- 168 High School VEX EDR teams

Indiana also hosts the largest State Robotics Competition in the country and the 2nd largest VEX event (only behind the world championship)
• Indiana became the 3rd state to implement all 9 policy recommendations of the Code.org Advocacy Coalition
Nextech Partnership
• 689 K-12 teachers trained in CS since June 2018
• More to be trained over the next few months

SCRIPT workshops
• Teams from 66 districts have participated in SCRIPT strategic planning and implementation workshops

Girls Who Code
• State-level partnership
• 135 clubs across the state
• Science Framework development to include K-8 computer science

• Additional funding from General Assembly will allow us to grow/expand our CS PD efforts
Grants for PLTW curriculum and training
- Round 1: $51,800 to 7 schools
- Round 2: $348,000 to 48 schools

Cyber Awareness campaign for educators
- 86 districts participating
- 40,000 staff

Cybersecurit
Digital Learning Grants

2018
- 27 school corporations
- Up to $75,000 each
- $2,025,000 awarded
- Add and expand vetted STEM curriculum K-12
Digital Learning Grants

2019
- 50 school corporations
- Up to $50,000 each
- $2,327,439 awarded
- Support schools with:
  - STEM curriculum
  - Devices for coding
  - Robotics
  - Project-based learning
  - Professional learning for teachers
Summer of eLearning

- 21 conferences
- 20 days June – August
- 55 sponsoring districts
- 8,000+ educators
Summer of eLearning

100’s of learning opportunities focused on STEM, computer science, and classroom technology

- Nextech CS fundamentals workshops
- PLTW STEM and CS sessions
- Apple coding and STEM PD
- Girls Who Code
- Teacher-led trainings

Indiana Summer of eLearning
Vision

All Indiana students in grades K-12 will graduate with critical thinking skills and be prepared for an innovation-driven economy by accessing quality, world class STEM education every day in the classroom by 2025.
Mission

Ensure Indiana teachers are prepared to provide every student in grades K-12 with an evidence-based, effective STEM education by 2025.
**Strategic Objective 1:** Improve STEM Instruction

**Target:** 100 percent of Indiana K-12 teachers will be trained in problem/project/inquiry-based approaches to learning by 2025.
Strategic Objective 1: Improve STEM Instruction

Recommendation 1: Prepare pre-service and in-service educators with evidence-based critical thinking, and problem/project/inquiry-based approaches to learning.

- **Action Step 1:** Identify and train at least 300 K-12 teachers to become project-based learning trainers (STEM Coaches) by the summer of 2021.

- **Action Step 2:** Partner with higher-ed institutions to ensure PBL is embedded in teacher training programs by training two representatives from each program. Also, update the state accreditation process.

- **Action Step 3:** Identify and train at least 2000 K-12 teachers at all grade levels in computer science and cybersecurity content and pedagogy by June 30, 2021.
Strategic Objective 1: Improve STEM Instruction

Recommendation 2: Implement strategies and activities to recruit and retain high-quality STEM proficient and STEM-trained educators.

- **Action Step 1:** Develop a model of “best practice” to embed PBL into EPP pedagogy.
- **Action Step 2:** Develop Grow Your Own (GYO) solutions at both the adult (transition to teaching) and K-16 levels.
- **Action Step 3:** Create awareness of existing licensing options and flexibility (including Computer Science and Cybersecurity).
- **Action Step 4:** Increase STEM Cadre membership to enhance collaboration and to enable practitioners to provide consistent input on the STEM Playbook.
Strategic Objective 2: Scale Evidence-Based STEM Curriculum in Classrooms

Target: 100 percent of Indiana K-12 schools will implement integrated and evidence-based STEM curriculum by 2025.
Strategic Objective 2: Scale Evidence-Based STEM Curriculum in Classrooms

Recommendation 1: Provide resources to schools to implement integrated, evidence-based STEM curriculum in classrooms with the emphasis on K-8 learning environments.

- **Action Step 1:** STEM Innovations, LLC will create a vetted list of high-quality STEM curriculum.
- **Action Step 2:** Develop a database to identify those schools that have implemented an evidence-based STEM curriculum.
- **Action Step 3:** IDOE will publish a list of Computer Science and Cybersecurity curriculum providers and resources.
- **Action Step 4:** Continue to offer STEM Acceleration Grant Opportunities.
- **Action Step 5:** Update STEM Acceleration Grant process to require use of a state-vetted curriculum.
**Strategic Objective 2:** Scale Evidence-Based STEM Curriculum in Classrooms

**Recommendation 2:** Evaluate processes and incentives for STEM certified schools.

- **Action Step 1:** Review and modify STEM certification process.
- **Action Step 2:** Determine levels of certifications that accurately represent the quality of STEM certifications.
- **Action Step 3:** Develop a tool to incentivize STEM certification attainment.
Strategic Objective 3: Foster Early STEM Career Exposure

Target: 100 percent of Indiana schools will create and sustain robust STEM-related business and industry partnerships in order to inform curriculum, instruction, and student experiences to foster college and career readiness.
Strategic Objective 3: Foster Early STEM Career Exposure

Recommendation 1: Provide a roadmap to educators showing how STEM integration ensures students receive career exploration (K-8) and career readiness opportunities (9-12).

- **Action Step 1:** Development of five Programs of Study (cradle to career) in key sectors to include career awareness (K-5), career exploration (6-8), and work-based learning experiences (9-12).

- **Action Step 2:** Develop a statewide Computer Science and/or Cybersecurity competition or experience (i.e., Cyber Patriots, CTSOs, VEX, etc.).
Strategic Objective 3: Foster Early STEM Career Exposure

Recommendation 2: Support schools as they coordinate with business, industry, and post-secondary partners to design extended learning opportunities linked to STEM careers.

- **Action Step 1:** Facilitate a planning grant process to promote the development of community/regional advisory groups.
- **Action Step 2:** Work with state agencies to ensure alignment of efforts (i.e., Governor’s Workforce Cabinet, Office of Career Connections and Talent, Office of Work Based Learning and Apprenticeship).
## STEM Funding

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<tr>
<th>Area</th>
<th>Cost</th>
<th>Source</th>
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<tr>
<td>Improve STEM Instruction</td>
<td>$6,650,000</td>
<td>Title II, Next Level CS Grant Funds</td>
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<td>$50,000</td>
<td>Title II</td>
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<td>Scale Evidence-Based STEM Curriculum in Classrooms</td>
<td>$900,000</td>
<td>2020 State STEM Funds</td>
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<td>$100,000</td>
<td>2020 State STEM Funds</td>
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<td>Greater Access to Quality STEM Opportunities</td>
<td>$44,000</td>
<td>Perkins Fund</td>
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<td>$500,000</td>
<td>David C. Ford</td>
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<td>TOTAL</td>
<td>$8,244,000</td>
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• Dr. Carla C. Johnson, Lead Evaluator
• January 1, 2019 to December 31, 2019
• Follow up to STEM Inventory Study conducted in fall 2018
• Evaluation goal - to inform current and future efforts and investments
  • Determine progress and challenges in STEM statewide (macro)
  • Examine State of Indiana STEM Investments (micro)
• STEM Inventory Survey – April 15 to May 1, 2019
  • Searchable Online Database of Findings Available September 2019
  • Survey is for:
    • Superintendents
    • Principals
    • Teachers
• Site Visits to Sample of Selected STEM Schools and K-6 STEM Acceleration Grant Programs
  • Round One and Round Two only
• Inventory of Available Evidence-Based STEM Curriculum
  • Curriculum that has produced gains in student outcomes
• Indiana STEM Landscape Report – available to public January 2020
  • Detailed findings on survey and site visit data
  • Recommendations for future efforts and investments
• Framework for Evaluating STEM Implementation – Future Use
  • Informed by the 2019 Indiana STEM Evaluation
  • Metrics for long-term study of Indiana STEM
Ben Carter, Director of Workforce and Innovation

STEM Playbook
1. What are your initial thoughts on the action steps for **Improve STEM Instruction**?
2. What steps are unclear or missing information?
3. Does the timeline seem reasonable?
4. What suggestions do you have?
5. What additional questions or wonderings do you have?
1. What are your initial thoughts on the action steps for **Scale Evidence-Based STEM Curriculum in Classrooms**?
2. What steps are unclear or missing information?
3. Does the timeline seem reasonable?
4. What suggestions do you have?
5. What additional questions or wonderings do you have?
1. What are your initial thoughts on the action steps for **Foster Early STEM Career Exposure**?
2. What steps are unclear or missing information?
3. Does the timeline seem reasonable?
4. What suggestions do you have?
5. What additional questions or wonderings do you have?
STEM Organization/Future Meetings

• STEM Council Role
• STEM Cadre Role
• DOE Support Role

*Next Steps
Dr. Andrew Melin, Chief Innovation Officer
  • 317-234-3880 - Office
  • 317-498-3719 - Cell

Ben Carter, Director of Workforce and Innovation
  • 317-232-9168 - Office
  • 317-385-8262 - Cell

https://www.doe.in.gov/wf-stem/idoe-stem-council
2019 Legislative Session

**STEM Budget**
- House: $2M
- Senate: $2M
- Governor: $2M
- IDOE: $20M
- STEM Council: $20M*

**David C. Ford**
- House: $6.77M
- Senate: $6.17M
- Governor: $6.17M
- IDOE: $6.11M

**NextLevel Computer Science**
- House: $6M
- Senate: $0
- Governor: $6M
- IDOE: $0*

*Included in $20M STEM Ask

**HB 1001**
- $300K for Math Transition
- + $5M Student Success

**HB 1002 - CTE**
- Perkins Money to GWC
- 50% of CTE Teachers NotLicensed
- Teacher Licensing Exam to National
- ICO and School Partnerships

- Adds Members to GWC
- 15 PGP Pts in CTE
- Let Indiana Work for You Program