Fall 2021

Tennessee's Future Workforce Initiative

Department of Education
The TSIN was created in partnership with the Tennessee Department of Education (TDOE) focusing on over a decade of research into successful state-wide STEM collaborations and seeks to nurture and scale effective science, technology, engineering, and math (STEM) learning opportunities for all K-12 students in Tennessee.

Our goals are to support the TDOE in enhancing the STEM education field about the importance of creating industry-connected, STEM-rich learning opportunities for students and their families across K-12 that in turn generates interest in the STEM educational continuum from preschool through higher education and workforce.
To support Governor Lee’s FWI to increase STEM training in K-12 schools, the TSIN and TDOE partnership has prioritized the below three areas of emphasis to move Tennessee to the top 25 states for job creation in the technology sector by 2022.

**INCREASE EXPOSURE TO STEM**
Launching new CTE programs focused in STEM fields with 100 new middle school programs and tripling the number of STEM-designated public schools by 2022.

**INCREASE EDUCATOR CAPACITY**
Growing the number of teachers qualified to teach work-based learning and advanced computer science courses through STEM teacher training and implementation of K-8 computer science standards.

**INCREASE ENGAGEMENT**
Expanding postsecondary STEM opportunities in high school through increased access to dual credit, AP courses, and dual-enrollment.
Future Workforce Initiative Implementation

The TSIN team greatly values tracking implementation targets along the way. Therefore, we have identified the major areas of focus in our work that align with Governor Lee’s goals. Based on the 2020-2021 academic year, the FWI impact is far-reaching. Below are key data points that highlight this work.

1. Launching new CTE programs focused on STEM fields – TSIN and TDOE partnered to create a new STEM CTE teacher online training course for all 6 STEM Programs of Study. **Number of teachers trained to teach STEM CTE Programs of Study: 209 (2019-20) + 92 (2020-21) = 301**

2. Growing the Number of Teachers Qualified to Teach Advanced Computer Science – Implementing the Code.org and K8 Digital Readiness Standards training across TN. **Number of teachers trained: 232 (2019-20) + 261 (2020-21) = 493**

3. Increasing Access to AP Computer Science Courses – Through Code.org, TSIN and TDOE have trained 166 teachers in AP Computer Science Principles, expanding the number of CSP course offerings by 20% from the 2019-20 implementation year.

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<tr>
<th>Partnered with Vanderbilt to evaluate the STEM School Designation Process</th>
<th>Expanded TSIN Staff Capacity through Regional Consultants for Each Grand Division</th>
<th>Managed the Code.org Professional Learning Program</th>
<th>Offered Computer Science Grants to Code Trainees Supporting AP Courses</th>
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<td>Created K-8 Computer Science Standards Training</td>
<td>Supported the TN STEM Innovation Summit Conference May 2021</td>
<td>Provided Sustainability Grants to STEM Designated Schools</td>
<td>Scaled the STE(A)M Resource Hub to Support Teachers Statewide</td>
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FWI Impact Stories

- **STE(A)M Resource Hubs** – To expand upon the COVID-19 resource hub, a spring, summer, and fall hub have been created to extend and enhance hands-on activity sets for grades 3-12 that focus on STEM exploration and careers in TN. From April 2020 - June 2021, there have been 69,973 unique visits to the STEAM hub resource sets. "I see more ways that design thinking and core content can be implemented together." - 10th Grade Teacher

- **Designated Schools Sustainability Grants** – Each of the 13 schools that earned Tennessee STEM School Designation for the 2020-2021 academic year was provided a generous grant in the amount of $10,000 to expand STEM educational experiences for students and teachers. "This designation validates that our vision for the future of learning is on the right path. Thank you for supporting us!" T STEM Academy at East High School, Shelby County

- **STRE(A)M Summer Mini-Camps** – To support the Tennessee Learning Loss Remediation and Student Acceleration Act (SB 7002/HB 7004), TSIN partnered with Defined Learning to offer students in K-8 engaging performance tasks that offer hands-on project-based learning opportunities aligned to TN state standards. The performance tasks have been utilized 8,302 times with 670 teachers and 184 different entities. TSIN created a Summer STRE(A)M Mini-Camp Teacher Training through EdX that was viewed by teachers 20,371 times.
**FWI Impact Stories**

- **Code.org Regional Partnership Program** – The Code.org professional development program supports efforts to expand equitable access to computer science (CS) in K-12 schools through a one-year cohort approach for teachers through K-5 CS Fundamentals, 6-10 CS Discoveries, 9-12 CS Principles. **CS offerings have expanded to 42 CSD and 47 CSP unique programs at schools with no prior CS courses.** "I liked engaging in the computational thinking process that my students will be working through as a part of the planning stage.” - Middle School Teacher

- **New CTE STEM Teacher Training** – Created an online course for new CTE educators that explore 6 STEM core competencies to strengthen teacher capacity for these courses: STEM Explorers, STEM Innovators, STEM Career Exploration, BioSTEM, Engineering and Technology, and Advanced STEM Applications. "This course is informative, useful, direct, and a great intro to the design process, PBLs, and competency-based education. I'm glad I'm working through this for my engineering courses.” - Principles of Engineering and Technology Teacher

- **K-8 Digital Readiness Standards Training** – The K-8 Computer Science Standards were broken into 3 courses for K-2, 3-5, & 6-8 educators. New workshops were added to support school counselors & administrators as they support teachers at the school building level. **Over 65% of attendees surveyed responded that they now have confidence identifying CS resources that can be incorporated into instructional strategies for learners and learning objectives.**

- **Computer Science Educator Grants** – Participants who completed the yearlong CS Discoveries (6-10) & CS Principles (AP CSP 9-12) programs also received generous stipends & classroom materials to further support computer science implementation at their schools. "Without this grant, I would not have been able to make my 6th-grade computer science project possible. 90 students will have a helping hand in the program!” - 6th Grade Teacher
HIGHLIGHTS OF THE YEAR 2020-2021

393,482
Tennessee Students Impacted in 2020-2021 Implementation Year
through network programming, including the Future Workforce Initiative.

2,271
Teachers Trained
growing teacher capacity has a significant, lifelong impact on every student they teach.

United States Space Force Partnership Developed
FWI Expansion Plan

To support Governor Lee’s FWI to increase STEM training in K-12 schools, the TSIN and TDOE partnership has expanded upon the below three areas of emphasis to move Tennessee to the top 25 states for job creation in the technology sector by 2022.

**Targeted STEM Expansion**
Programming and wrap-around support that assists Tennessee educators and communities in expanding STEM teaching and learning for all students.

**Career Exploration and Advising**
Enhancing the career exploration toolkit for grades 6-12 through two statewide web portals that provide an interest assessment, a deep dive into the 16 CCTE career clusters, digital resume building, and opportunities to apply for entry-level jobs.

**Computer Science**
Alternative licensure pathways for teachers will be created in addition to CS integration models that provide replicable frameworks for TN schools and districts.
Looking Ahead
Targeted STEM Expansion

STEM and STE(A)M Designation
Outreach and support for schools and districts looking to explore STEM/STE(A)M School Designation.

STRE(A)M Summer Mini-Camps
Curated 63 K-8 hands-on STRE(A)M lessons for summer mini-camps statewide.

Rural STEM Alliance
A cadre of rural stakeholders across the state will work collaboratively to identify unique outreach efforts and develop a toolkit framework of resources to support rural STEM education in 2021-22.
Looking Ahead
Career Advising and Exploration

**Defined Careers**
Supplemental career exploration tool to increase student/teacher exposure to STE(A)M careers aligned to the 16 CCTE career clusters for grades 6-12.

**Defined Learning**
Continue to provide grades 5-8 with an online STEM career awareness curriculum aligned to STEM pedagogy and skills development through hands-on performance tasks.

**Elevate Tennessee**
Students in grades 8-12 will begin their journey into finding the perfect career through Elevate Tennessee. The platform allows students to explore careers, build a resume, view popular jobs, learn about local companies and take online training to build their employment skills and resume.

www.elevatetn.org
Looking Ahead

Computer Science Expansion

Computer Science Microcredential
CS microcredential for K-8 and 7-12 TN educators that results in a verified license enhancement in the form of a content endorsement.

Digital Readiness and Code.org
Continue to provide CS focused training for educators in grades K-12 to build capacity and increase access to CS instruction.

Computer Science Integration Pilot Models
Conduct a deep dive pilot project with 9 schools (3 from each grand division across elementary, middle, and high school grade bands) to use the design process to create replicable computer science integration models that will inform other TN schools and districts how to create their own that align to CS needs in their communities.
Work That Matters

61 STEM Designated Schools
Tripled the number of STEM Designated Schools in 2020

7 STEM Innovation Hubs
Support STEM Integration Statewide

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