**Grantee Name:** Battelle Education (Tennessee STEM Innovation Network)

**Grant Contract Edison Identification Number:** 46452

**Term of Grant Contract:** July 15, 2015 – June 30, 2016

**Total Grant Amount:** $1,500,000

### PROJECT SUMMARY

Battelle Education has continued its management and support of the Tennessee STEM Innovation Network (TSIN). TSIN is a public-private partnership between the State of Tennessee and Battelle that was established by Executive Order of the governor in 2010 and serves as the central management structure for working with schools, regional teams, industry partners, and other supporting organizations actively involved in furthering STEM educational opportunities in Tennessee. TSIN works collaboratively with the Tennessee Department of Education to ensure alignment to the State’s STEM strategy and dissemination of STEM funded activities and their outcomes.

In addition, Battelle Education, through TSIN:

- Works collaboratively with Tennessee STEM businesses and institutions, such as the University of Tennessee, Vanderbilt University, the American Chemical Society, Oak Ridge National Laboratory, and Oak Ridge Associated Universities in direct support of education initiatives aligned to support the development of great teachers and leaders

- Shares promising practices and exchanges models with other state STEM networks through STEMx, a national network of state-level STEM networks

- Provides technical assistance to the networks seven (7) regional STEM innovation hubs and platform schools to connect them with peer organizations focused on similar goals, objectives, and innovative practices

- Coordinates with the Tennessee Department of Education to develop joint messaging strategies around STEM education in an effort to align programs and mutually desirable outcomes
The Grantee, through TSIN, shall make available to all middle schools in the state a curriculum to educate students on the variety and benefits of STEM careers.

OUTCOME:
Battelle Education contracted with Chattanooga-based Thinking Media, Inc. to make its innovative product, Learning Blade, available to all middle schools in the state. Learning Blade is a supplemental STEM career awareness curriculum that emphasizes the benefits of STEM careers, demonstrates the relevance of academic skills to future career, and provides real-world examples of the use of math and ELA skills in practical situations. Studies show that during the middle school years, students begin to form their initial attitudes toward future careers. Learning Blade uniquely fit the need recognized by the network to positively influence students in their formative years to consider STEM careers through the use of technology. 432 schools in over 66 counties in Tennessee activated their Learning Blade accounts during the academic year leading to over 124,568 lessons being completed by Tennessee students with a total of 57,379 students currently registered in the system.

Initial pre-and post-survey responses for the launch year indicate that 70% of students participating in use of the program said they learned about new careers and 75% of students said they learned about technology. Learning Blade has shown dramatic increases in student interest in following a STEM career pathway. (Please see Appendix A, Learning Blade “Year One Final Report” for additional statistics.)
The Grantee, through TSIN, shall implement STEM leadership training and professional development in all STEM innovation hub regions.

OUTCOME:
The TSIN expanded opportunities to sharpen leadership and STEM skills through professional development in all regional STEM innovation hub areas. Each hub was sub-granted funds to provide professional development for the state's teachers during May and June 2016. In total, 42 professional development workshops were conducted by the seven regional STEM innovation hubs, with 523 K-12 educators participating.

In addition, the TSIN expanded the Innovative Leaders Institute (ILI) to accommodate a larger cohort of participants and amplify the program's impact. Thirty-five leaders from ten school districts participated in the ILI. The ILI is a year-long training and mentoring experience for educators that is led by some of the top innovative school leaders in the state. The ILI provides participants opportunities to network with other building-level leaders from across the state to construct a cadre of innovative thinkers and leaders, visit innovative schools to examine different models of STEM integration, and share best practices and resources with the expectation of immediate impact. Participants in the ILI are required to submit competitive applications that must include a building-level team of a principal or assistant principal, and a lead teacher to strengthen the impact of the ILI on their respective schools. The ILI is approved for TASL credit by TDOE.

500+ EDUCATORS completed STEM workshops at TSIN hubs

INNOVATIVE LEADERS INSTITUTE DISTRICT PARTICIPATION

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Innovative Leaders Institute Cohorts 1 & 2
RURAL STEM SURVEY:
51% of teachers shared they had not participated in any STEM-focused professional development in the past two years. Interest is high.

- 80% were interested in Learning Blade
- 83% were interested in professional development from regional STEM innovative hubs
- 59% were interested in hosting a STEMmobile

OUTCOME:
The TSIN established a regional STEM innovation hub in Northwest Tennessee, and commissioned a rural needs analysis study to inform the establishment of a hub specifically dedicated to serving the rural areas of the state during the term. The Northwest Tennessee hub was awarded to the University of Tennessee, Martin through a competitive RFP process in October 2015. Over the term of the grant, the Northwest Tennessee hub trained 91 educators through STEM professional development workshops aimed at generating resources for area teachers, identified STEM industry leaders to serve as iSTEM Ambassadors to schools, and identified student STEM ambassadors that will assist in establishing STEM opportunities in local schools.

The rural needs analysis study, conducted by STEM Innovations, Ltd., solicited feedback on programmatic gaps and issues with geographical access to hub activities and will be used to inform programs in the next term to specifically serve rural districts in the state. The design and launch of the hub dedicated to serving the rural areas of the state will be collaboratively planned with TDOE to ensure alignment to the Department’s STEM priorities and strategies.

(Please see Appendix B "Rural Needs Analysis").
**Additional Milestones, Contributions, and In-Kind Support**

### Tennessee STEM Innovation Summit

The Tennessee STEM Innovation Summit, the state's largest STEM event, was held in May at Vanderbilt University. More than 325 educators and leaders from five states participated in the event and to learn from Tennessee's STEM investments. The Innovation Summit provided leadership opportunities for 30 educators who facilitated learning sessions showcasing their promising practices in the classroom that are inspiring the next generation of innovators and thinkers. The Innovation Summit was hosted with the help of Tennessee STEM industry partners whose sponsorships, combined with ticket sales, generated over $70,000 to fund the two-day learning opportunity for the state's educators.

### Visiting Planetarium Program

As an in-kind contribution through its corporate philanthropy focus on STEM education, Battelle Memorial Institute contributed $25,000 to TSIN to enable the deployment of a visiting planetarium program to rural schools across the state. Dr. Billy Hix, Associate Professor of Education at Motlow State Community College, coordinated and led the program's planetarium visits to 12 rural schools during the spring of 2016. Schools selected for visits were geographically isolated, located in high-poverty areas, or lacked the resources for school field trips. During each visit, Dr. Hix led a full program related to the study of the solar system, tying in appropriate standards and timely classroom discussions into his visits. The visiting planetarium program has generated immense interest from schools across the state that has resulted in a waiting list for visits in the upcoming academic year.

### Tennessee Valley Authority STEM Mini-Grants

The Tennessee Valley Authority (TVA) partnered with TSIN to offer STEM-focused mini-grants to inspire innovative classrooms across the state. TVA contributed $30,000 to fund the program and with the network's help, 21 schools received funding to launch new STEM projects in the classroom.

### STEMx

The STEMx network is a multi-state STEM network developed for states, by states. This grassroots movement provides an accessible platform to share, analyze, and disseminate quality STEM education practices and tools across states. TSIN is a founding member state of STEMx and frequently shares Tennessee's STEM models and practices with a national audience. Participation in STEMx is provided as an in-kind contribution from Battelle and used as a way to infuse promising STEM practices utilized by other states into the work of TSIN.

### 100kin10

As the designated representative of the Tennessee Department of Education's STEM efforts related to 100kin10, TSIN's director participated in the National Partner Summit held in April 2016 at Space Center Houston in Houston, TX. 100kin10's mission is “to train and retain 100,000 quality STEM teachers over the next 10 years.” TDOE's commitment to 100kin10 focuses on the retention of quality STEM teachers, utilizing the network's outreach to provide professional development and leadership strategies to the state's educators. In addition, Tennessee was given an opening speaking slot at the Partner Summit, where Mr. Andy Roach from Rutherford County Schools spoke to the power of STEM partnerships forming in the Volunteer State and how they were reshaping his classroom.

### STEM School Chattanooga

STEM School Chattanooga hosted its first graduation ceremony in May, 2016. The school is the network's designated platform school in Hamilton County and was established as a new school model through STEM Race to the Top funding in 2012. The network's continued support of its early investments in its platform schools continues to yield innovative models of instruction that are informing districts across the state. STEM School Chattanooga boasts the state's only FabLab, requires all students to take core classes at the honors level, and has every student enrolled in at least one college-level course.