

West Tennessee STEM Hub

Annual Impact Statement 2016-17

Vision. To unite K-12, institutes of higher education and STEM industry partners in an unprecedented approach that transforms STEM education and workforce opportunities throughout West Tennessee.

Mission. The West TN STEM Hub (the Hub) serves as a resource for West Tennessee to increase students' interest in and preparedness for the STEM workforce. The Hub takes a multi-pronged approach to engaging target audiences through a variety of activities including providing materials for individual exploration, in-classroom and out of classroom learning opportunities, teacher training, and creating conversations between K-12, higher education, and industry around STEM education. Collaborative partnerships between the Hub and STEM community professionals are the cornerstone of this work.



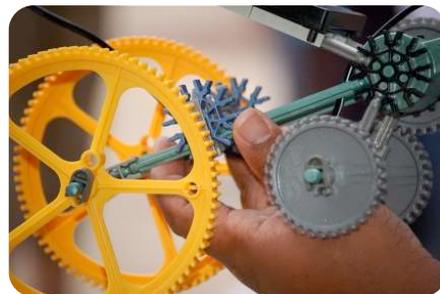
Key Initiatives

STEM Student Ambassador Program. The STEM Ambassador program is designed to provide on-site support for teachers, community agencies, or companies that wish to engage K-12 students in meaningful STEM learning activities. The STEM Ambassadors are undergraduate STEM majors who not only make a positive impact with area students through providing tutoring, STEM competition coaching, and other support, but also learn essential professionalism, communication, and leadership skills through their structured position training.

STEM Lending Library. The STEM Lending Library houses materials that bring real world examples and hands-on activities to students in classrooms across West TN. Many schools face significant resource challenges in being able to provide cutting-edge and engaging instruments in the classroom, particularly in the Memphis community; therefore, the STEM Lending Library system provides STEM manipulative kits for loan to West TN teachers.

Online STEM Resources. The STEM Hub's website is a one-stop-shop providing numerous free resources for teachers and students. Teachers have engaging STEM lesson plans at their fingertips, including 35 online STEM integrated curricular modules and activities that correspond with the STEM Lending Library materials. Students can explore career opportunities through STEM spotlights highlighting West TN professionals and industries and learn about opportunities to participate in upcoming competitions, such as the Buckman-sponsored STEM essay competition or STEM challenges.

www.westtnstem.org.



STEM Professional Development for K-12 Teachers. STEM teachers are constantly facing the challenge of developing new skillsets and knowledge to keep pace with the rapid advances in science, technology, and engineering. Professional development programs can be very expensive and thus difficult for teachers to attend. The STEM Hub is committed to seeking grant funding to provide free training to STEM teachers in current STEM pedagogy, real-world applications of STEM curricular content, and use of advanced technology in the classroom.

www.westtnstem.org

Measuring Success

STEM Ambassador Program. The 2015-16 STEM Ambassador program documented increased math performance with participants: Students working with STEM Ambassadors achieved math performance goals at rates of **12%** (middle school) and **30%** (elementary) higher than that of their peers. The Ambassador program impacted over **4300** students and teachers this year through regular school assignments and ‘on-call’ support!

Participating students report that STEM Ambassadors working with their class:

90% Made learning easy

85% Made learning math and science more interesting

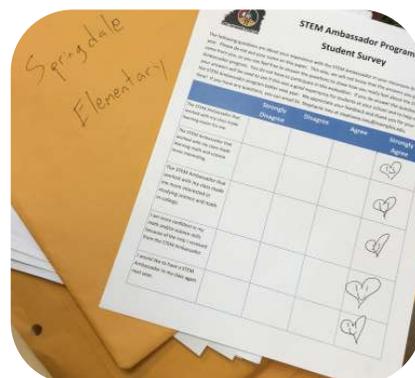
75% Made them more confident in math and science skills

96% Made them want to work with a STEM Ambassador again next year

*The STEM Ambassador Program is the **single most effective support** for STEM teachers.* - SCS K-12 teacher

The students teach you so much about yourself, and they are excited to see you just as much as you are excited to see them. - STEM Ambassador

I never expected to see the gratitude from teachers and parents that I see, and everyone’s gratitude helps make this job fulfilling. - STEM Ambassador



STEM Lending Library. The Lending Library resources grew in 2016-17 due to significant investments by **International Paper, TVA and the Tennessee STEM Innovation Network**. The Lending Library now includes Lego EV3 Mindstorms, Cubelets, MOSS Robotics, additional KNEX roller coaster, bridge, and car kits, and new math-focused sets. In 2017, there were 260 distributions of Lending Library kits to 72 different teachers **impacting over 3700 students** from the Memphis location alone!

- **91%** of teachers report the STEM Lending Library materials increase interest in math, science, and engineering with their students.
- **‘Building confidence in science and engineering’** is identified by teachers as the greatest impact of the STEM Lending Library materials and lessons with their students.

Online STEM Resources. **Six new computer science modules for middle grades** were added to the Hub’s STEM Integrated Curricular Module resource this year. We are proud to announce that module enrollments have grown from 143 users in 2014 to **1286 in 2017!**

STEM Professional Development for K-12 Teachers. In 2017, nearly 300 West TN teachers received FREE training from the STEM Hub in STEM pedagogy and use of the STEM Lending Library materials. After attending training workshops:

- **91%** of participants are more confident in their ability to introduce active STEM projects in their classroom
- **100%** believe the lesson plans and materials available through the Lending Library will increase students’ understanding of math and science concepts
- **96%** would recommend the workshops to their peers