

# West Tennessee STEM Hub

## Annual Impact Statement 2016

**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 29 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](http://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.

# Measuring Success: 2016 By the Numbers.

**STEM Ambassador Program.** The 2016 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.

*Participating students report that STEM Ambassadors working with their class:*

**92%** Made learning easy

**85%** Made learning math and science more interesting

**86%** Made them more confident in math and science skills

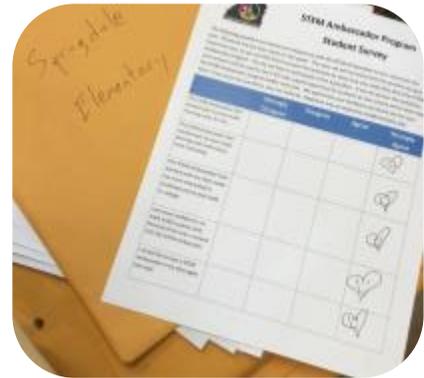
**95%** Made them want to work with a STEM Ambassador again next year

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

*I think I was able to open the eyes of the students that I worked with to **show them that they have options.***

- STEM Ambassador

*For me, it is amazing the relationship you create with the kids, and how much you can **share and positively impact their lives.*** - STEM Ambassador



**STEM Lending Library.** The Lending Library resources grew in 2016 due to significant investments by International Paper and the Tennessee STEM Innovation Network. The Lending Library now includes Lego EV3 Mindstorms, additional KNEX roller coaster, bridge, and car kits, and new math-focused sets. There were 99 distributions of Lending Library kits from the Memphis location alone in 2016!

- **92%** 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.** The STEM Hub Website hits now top **1,000** unique visitors per month. The Hub's STEM Integrated Curricular Module enrollments grew from 143 module users in 2014 to **1040 in 2016!**

**STEM Professional Development for K-12 Teachers.** In 2016, over 200 West TN teachers received FREE training from the STEM Hub in STEM pedagogy and use of the STEM Lending Library materials. After attending the 2016 training:

- **99%** of participants are more confident in their ability to introduce active STEM projects in their classroom
- **100%** believe the lesson plans shared through the training will actively engage students and increase their interest in math and science
- **100%** would recommend the workshop to their peers