

STEMscopes Research Summary

With the passage of the Every Student Succeeds Act (ESSA) in 2015, districts and schools are required to use evidence to evaluate the programs, interventions, and curricula that they use. Many ESSA programs require schools or districts to evaluate the evidence of curricula in producing desired outcomes, most notably improving student achievement. Given the ever-changing nature of the classroom and available resources, ESSA has identified [four tiers](#) of evidence that districts can use to evaluate the strength of the evidence based on the research that has been conducted. The tiers range from Tier 1 (strong evidence where a randomized control trial has demonstrated effects on student achievement) to Tier 4 (demonstrates a rationale where there is a well-designed logic model but no research evidence).

Since its inception at Rice University, STEMscopes has conducted research to inform product development and to evaluate the effectiveness of STEMscopes on teachers and students. Based on this research conducted over several years, the evidence of STEMscopes effectiveness is solidly in Tier 2 (moderate evidence). In other words, there is moderate evidence of STEMscopes' effectiveness based on several high quality quasi-experimental studies. Below, we have highlighted several studies, including quasi-experimental studies as well as case-studies. Detailed study reports as well as additional research can be found at www.stemscopes.com/case_studies.

Texas – 5th Grade

For the fourth year in a row, STEMscopes district-users in the state of Texas had higher 5th grade passing rates than districts that do not use STEMscopes. Of the 1,148 districts (serving 399,250 5th grade students) included in the study, 559 districts used STEMscopes curriculum, while the remaining 589 districts used a district-created curriculum or purchased a different science curriculum. The study found that districts using the STEMscopes curriculum had higher average proficiency rates than non-STEMscopes districts for all students and for students identified as economically disadvantaged. Analyses that accounted for important demographic variables that influence achievement revealed that districts that used STEMscopes continued to have significantly higher overall STAAR passing rates compared to districts that did not use STEMscopes. See the full study [here](#).

Texas – High School Biology

In the 2017-2018 school year, districts that used STEMscopes for Biology had higher rates of students who met and mastered proficiency on the Biology EOC STAAR assessment than districts that did not use STEMscopes, controlling for previous year achievement and several important demographic variables. Specifically, using the STEMscopes curriculum was associated with an increase of 1.7% of students who met proficiency and 1.3% of students who mastered proficiency. These results translate to approximately 4,480 additional students meeting proficiency and an additional 3,426 students mastering proficiency in districts that used STEMscopes. See the full study [here](#).

Florida

A 2018 study conducted in Florida examined the relationship of using STEMscopes and student achievement on the Florida Statewide Science Assessment (SSA). In Florida, elementary students are assessed on the SSA in the 5th grade year. Utilizing data from both school performance and STEMscopes analytics, the research team found a positive association between teachers' use of STEMscopes and academic achievement on the SSA. Schools that used STEMscopes more frequently were more likely to experience gains in science proficiency. In the 2017-2018 school year, schools that used STEMscopes improved their science proficiency by 3% on average. Furthermore, high frequency users of STEMscopes saw an average increase of 6% proficiency from 2017 to 2018 (higher than the state average of 4%). See the full study [here](#).

Alabama

During the 2016-2017 school year, 16 Alabama districts used STEMscopes Alabama in their elementary schools, and 14 districts used STEMscopes in their middle schools. The 2017 ACT Aspire science results show that the STEMscopes districts outperformed the state average in the percentage of students defined as “Exceeding” grade-level mastery in science in fifth grade and seventh grade. In addition, compared to 2015-2016, STEMscopes districts increased their Exceeding proficiency rates at a higher rate than the state average. Specifically, STEMscopes districts increased their proficiency rate by 1.7 percent in elementary school and 1.0 percent in middle school, compared to state's respective increases of 0.9 percent and 0.5 percent. See the full study [here](#).

Rhode Island

During the 2016-2017 school year, five public school districts in Rhode Island used the STEMscopes NGSS digital science curriculum in their elementary schools. The 2017 results from the New England Common Assessment Program (NECAP) Science Assessment show that these districts outperformed the rest of the state on their fourth grade proficiency rates in science. Specifically, the five STEMscopes districts had an average science proficiency rate of 54.1 percent, and the state of Rhode Island had an average science proficiency rate of 40.6 percent. See the full study [here](#).

Oregon

Districts in Oregon that used STEMscopes had higher 5th grade proficiency rates than districts that did not use STEMscopes, controlling for previous year achievement and several important demographic variables. The 4-point increase in proficiency rates associated with STEMscopes translates to an additional 371 5th grade students considered proficient in science. While the Oregon science assessment is based on previous science standards, these results provide promising evidence for the effectiveness of STEMscopes NGSS. See the full study [here](#).

Magnolia ISD, Texas

From 2016 to 2017, the average statewide passing rate on the STAAR Grade 5 Science Assessment declined by 2%, dropping from 75 to 73%. Magnolia Independent School District bucked this trend, raising its passing rate by 4%, with gains for students who are economically disadvantaged and English language learners (ELLs) as well. According to Magnolia's Director of Science Sheri Gallemore, students' growth was due to the diligent work of their teachers and the consistent use of the STEMscopes science curriculum. See the full study [here](#).

Miami-Dade County Public Schools, Florida – Ben Sheppard Elementary

Ben Sheppard Elementary STEM Magnet School, a Title I School, removed science textbooks from the classroom and implemented the STEMscopes™ digital STEM curriculum and hands-on exploration kits in kindergarten through fifth grade. From 2016 to 2017, the proficiency rate for Ben Sheppard Elementary on the Grade 5 Statewide Science Assessment rose from 38 percent to 49 percent — a gain of 11 percentage points. In contrast, the average proficiency rate for the state of Florida remained flat at 51 percent. See the full study [here](#).

Broward County Public Schools, Florida – Horizon Elementary

Horizon Elementary, a Title I school in Broward County Public Schools, dramatically improved fifth-grade student science outcomes in a single year. The school transitioned to STEMscopes Florida digital curriculum for the 2016-17 academic year. When students took the Florida Grade 5 Statewide Science Assessment in 2017, the pass rate increased by 21 percent. See the full study [here](#).

Monterey County Office of Education, California

The Monterey County Office of Education (MCOE) Migrant Education Program Region 16 is California's largest migrant region with more than 12,850 migrant students identified. To support migrant students in achieving academic success, several school districts in Region 16 used STEMscopes as the central curriculum in their Migrant Education Summer Academies. Students who use the online, comprehensive science curriculum have improved their content knowledge and skills — and developed a love for science. See the full study [here](#).

Columbia County School District, Georgia

In the first year that Columbia County School District (CCSD) used the STEMscopes Georgia curriculum, the percentage of fifth graders scoring at the proficient level and above on the Georgia Milestones Science End-of-Grade (EOG) assessment increased from 52 percent in 2017 to 56 percent in 2018. By moving from textbooks to the online, comprehensive science curriculum, CCSD achieved its vision for hands-on STEM learning — and posted its best results in science since the Georgia Milestones Assessment System began in 2014-15. See the full study [here](#).