

Comparing Science Achievement in STEMscopes and Non-STEMscopes Districts for 403,811 Students in Texas

OVERVIEW & KEY FINDINGS

This study reports on a comparison of school districts that use STEMscopes and districts that do not use STEMscopes on the science component of the 2018-2019 State of Texas Assessment of Academic Readiness (STAARTM). The state of Texas creates benchmarks for proficiency in science, identifying students as not proficient, approaching grade-level proficiency, meeting grade-level proficiency, and mastering grade-level proficiency. The percentage of students in each of these categories is used to determine a district's achievement score in science. The percentage of students who approach grade-level proficiency is used by the state as the district passing rate. The key findings of the study include:

- Using the STEMscopes curriculum increased passing rates by 3 percentage points on the 5th grade science assessment, after controlling for important variables that influence achievement.
- Economically disadvantaged, minority, and LEP students made significant gains over their counterparts not using STEMscopes.

These findings are consistent with previous findings over five consecutive school years.

ELEMENTARY SCHOOL STAAR RESULTS

The state average passing rate for all Texas school districts that include 5th grade (N = 1,148 districts, 403,811 5th grade students) was 70% in 2018-2019. Of these districts, 427 districts used the STEMscopes science curriculum during this school year, and 721 districts used either a district-created science curriculum or purchased a different science curriculum. The rates of proficiency for these two groups of districts are found in the table below. The average passing rate (as determined by the percent of students who approach grade-level proficiency) for the STEMscopes districts was 74%, and the average passing rate for the non-STEMscopes districts was 69%. STEMscopes districts also had higher rates of students who met and mastered grade-level performance.

2019 STAAR Science Results for All Students

	Approaches	Meets	Masters
STEMscopes Districts (n = 427)	74%	47%	22%
Non-STEMscopes Districts (n = 721)	69%	40%	17%

In addition, achievement for specific subgroups of students was examined. The table below shows that STEMscopes districts had higher passing rates for economically disadvantaged, minority, and students with limited English proficiency (LEP), compared to districts that did not have STEMscopes.

2019 STAAR Science Results for Student Subgroups

	STEMscopes Districts	Non-STEMscopes Districts
Economically Disadvantaged students	67%	63%
African American students	60%	54%
Latino students	69%	63%
LEP students	58%	54%

FOLLOW-UP ANALYSIS ON ELEMENTARY RESULTS

For the fifth year in a row, a research follow-up study was conducted to ensure that these differences remained statistically significant after accounting for other important variables that influence student achievement. Specifically, multiple regression analysis was utilized to recalculate these achievement rates taking into account 2017-2018 achievement rates as well as important district demographics, including the size of the district, whether the district was a charter school district, average teacher experience, district attendance rate, and student demographics (i.e., race/ethnicity, socioeconomic status, LEP status).

Results showed that, after accounting for these important variables, districts that used STEMscopes continued to have significantly higher overall science achievement compared to districts that did not use STEMscopes (see table below). **STEMscopes was associated with an increase of 3 percentage points for students who approached grade-level performance, 3 percentage points for students who met grade-level performance, and 2 percentage points for students who mastered grade-level performance.**

2019 STAAR Science Results for All Students, Accounting for Important Variables

	Approaches	Meets	Masters
STEMscopes Districts (n = 427)	72%	44%	20%
Non-STEMscopes Districts (n = 721)	69%	41%	18%

ELEMENTARY PASSING RATES FOR STUDENTS SUBGROUPS

These analyses were also conducted on the passing rates for subgroups of students, including students who were economically disadvantaged, minority students, and students with limited English proficiency (LEP). Economically disadvantaged, African American, Latino, and LEP students had significantly higher passing rates in STEMscopes districts than in non-STEMscopes districts (see table below). **These differences range from a 3 to 4 percentage point increase for all four subgroups.**

2019 STAAR Science Results for Student Subgroups, Accounting for Important Variables

	STEMscopes Districts	Non-STEMscopes Districts
Economically Disadvantaged students	66%	62%
African American students	60%	56%
Latino students	68%	65%
LEP students	57%	54%

CONCLUSION

For the fifth school year in a row, districts that used STEMscopes had higher 5th grade passing rates than districts that did not use STEMscopes. Controlling for previous year achievement and several important demographic variables, STEMscopes districts increased their science achievement, resulting in an additional 10,000 students approached grade-level performance, 10,000 students who met grade-level performance, and 8,000 students who mastered grade-level performance. In addition to overall passing rates, results showed that passing rates for economically disadvantaged, minority, and LEP students were higher in STEMscopes districts than in non-STEMscopes districts. These findings show continued evidence that STEMscopes is associated with increases in student science achievement.