

# **Data in Support of BlueStreak Math's Impact on Growth of Student RIT Scores.**

**Title 1 School, Grades 3-8**

**ILLINOIS**

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## Background

BlueStreak Math is an online, standards-based solution for students in pre-K through grade 8 that assists students utilizing the key aspect of math fact fluency in addition, subtraction, multiplication, division and application facts.

In spring 2017 and spring 2018, 135 students in grades 3–8 took the Northwest Evaluation Association™ (NWEA™) Measures of Academic Progress® (MAP®) year-end assessment in mathematics. Of those 135 students, 97 received pre- and post-test scores in at least the Addition 1 (ADD 1) level of BlueStreak Math. The other 38 students either did not use BlueStreak Math or only took the ADD 1 pre-test.

## About Title 1 School, Grades 3-8

Title 1 School, Grades 3-8 reports an enrollment of 263 students, 100 percent of whom are ethnic minorities (97 percent are Black). Almost 86 percent of students enrolled are eligible for free or reduced-price meals. The school has a mobility rate of 22 percent and a chronic truancy rate of nearly 45 percent.

## Normative Data

MAP interim assessments use carefully constructed measurement scales that span grades and offer educators an accurate, apples-to-apples approach to view and report estimates of student achievement status within a subject. RIT Scale Norms allow educators to compare achievement status—and changes in achievement status (growth) between test occasions—to students' performance in the same grade at a comparable stage of the school year.

For this study, observed growth of student RIT scores from the end-year (spring 2017) to end-year (spring 2018) NWEA MAP tests are used. When mean growth of RIT scores are reported in grade 5, for example, that indicates the grade that students took the spring 2018 MAP assessment.

## Theory

135 students in grades 3–8 took the NWEA MAP year-end (spring) assessment in mathematics in both 2017 (2016-17 school year) and 2018 (2017-18 school year). Of those 135 students, 97 received pre- and post-test scores in at least the lowest level of BlueStreak Math (ADD 1) during the 2017-18 school year. The other 38 students either did not use BlueStreak Math or only took the ADD 1 pre-test in the 2017-18 school year.

Students who took the pre- and post-test in any level of BlueStreak Math (ADD 1 to DIV 3) would have been exposed to BlueStreak Math long enough to have been impacted by it. By

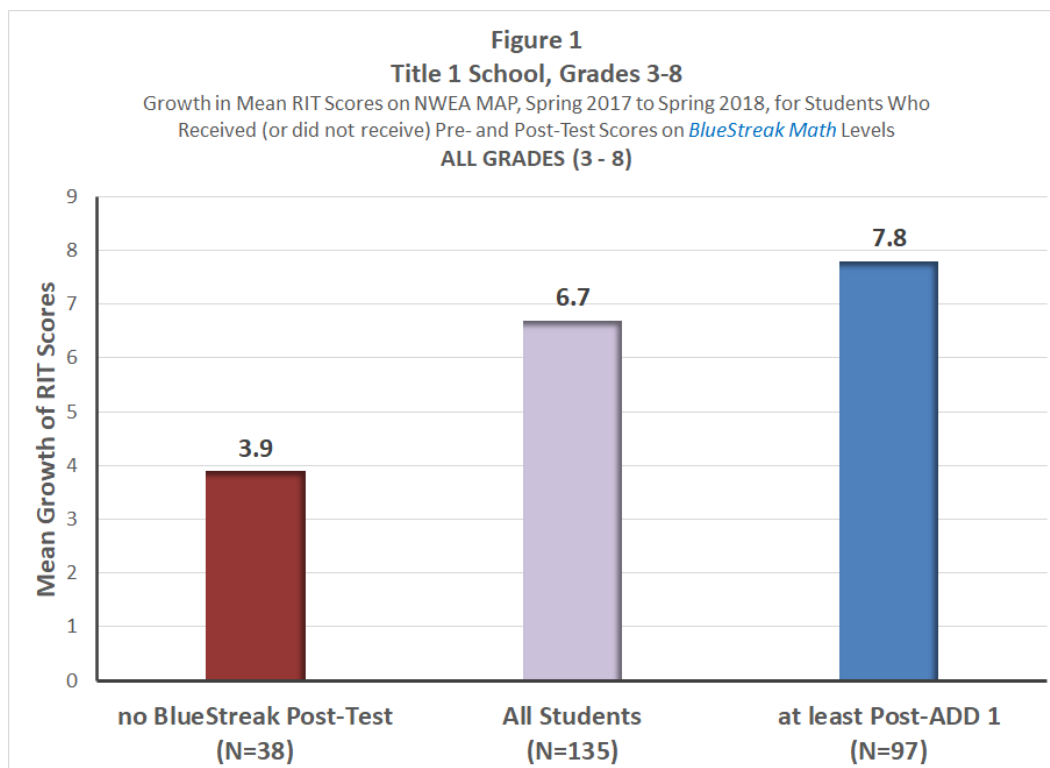
spring 2018, students that used BlueStreak Math would have had essentially a full school years' time to become familiarized.

If students that used BlueStreak Math for the full 2017-18 school year had higher observed growth in RIT scores on the MAP tests in Mathematics, then it would be plausible to surmise that BlueStreak Math had an impact on performance.

## Methodology

NWEA MAP RIT scores in Mathematics for students in grades 3 through 8 were compared between students that completed at least one BlueStreak Math post-test in 2017-18 and those students that did not. The comparison period was spring 2017 to spring 2018. Only in grade 3 were there more students without BlueStreak Math post-test scores than with them.

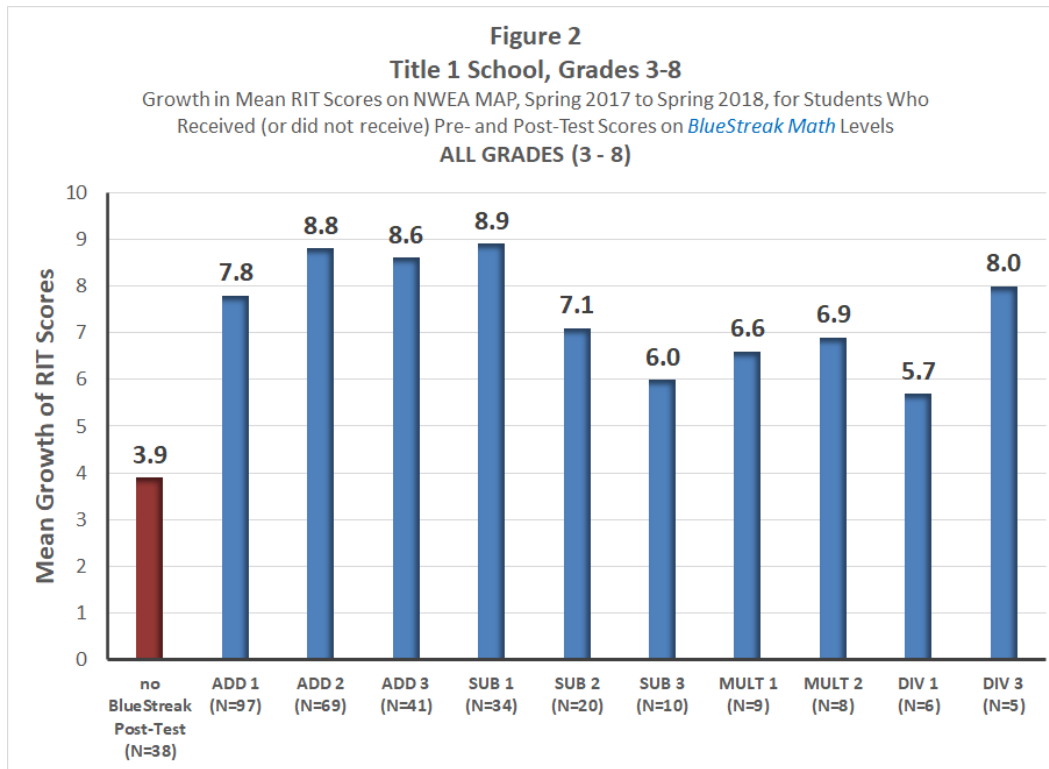
Figure 1 below shows the total mean Observed Growth in RIT scores for students in grades 3–8 during the comparison period. Students that completed a post-test in at least one BlueStreak Math level had a mean RIT score growth (7.8 points) that was double that of students that did not take a post-test in BlueStreak Math (3.9 points).



There are 4 fact fluency areas in *BlueStreak Math*: Addition (ADD), Subtraction (SUB), Multiplication (MULT), and Division (DIV). Each area has three pre- and post-tests that a

student must pass before progressing to the next level and/or fluency area (ADD 1 > ADD 2 > ADD 3 > SUB 1 > SUB 2 > SUB 3 > MULT 1 > MULT 2 > MULT 3 > DIV 1 > DIV 2 > DIV 3).

Of the 97 students that took the ADD 1 post-test, 69 advanced and took the ADD 2 post-test. 41 of those took the ADD 3 post-test. Of the original 97 students, five students progressed through DIV 3. Figure 2 shows that, no matter which BlueStreak Math level a student progressed to, the mean growth RIT score for that group of students was higher than students that did not take a BlueStreak Math post-test.



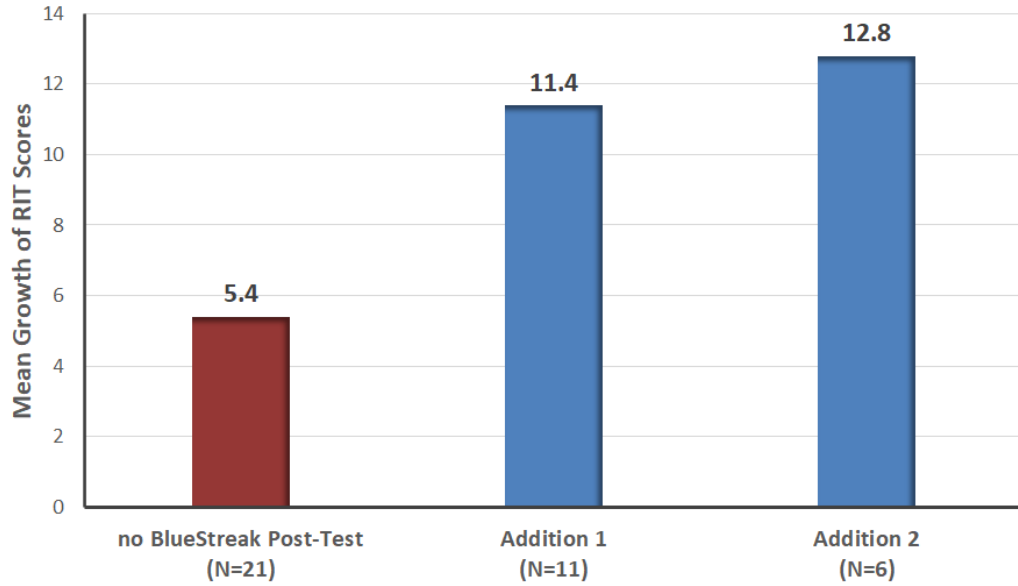
Except for grade 6, those students who progressed further through the BlueStreak Math levels had increasingly higher mean RIT score growth up to SUB 1 or SUB 2, depending on the grade (Figures 3 through 8).

NOTE: As in Figure 2, students who are counted for ADD 3, for example, are not exclusive of the ADD 2 sample. The graphs show mean growth for each BlueStreak Math level where one or more students have progressed as far as they were able.

**Figure 3**  
**Title 1 School, Grades 3-8**

Growth in Mean RIT Scores on NWEA MAP, Spring 2017 to Spring 2018, for Students Who Received (or did not receive) Pre- and Post-Test Scores on *BlueStreak Math* Levels

**Grade 3**

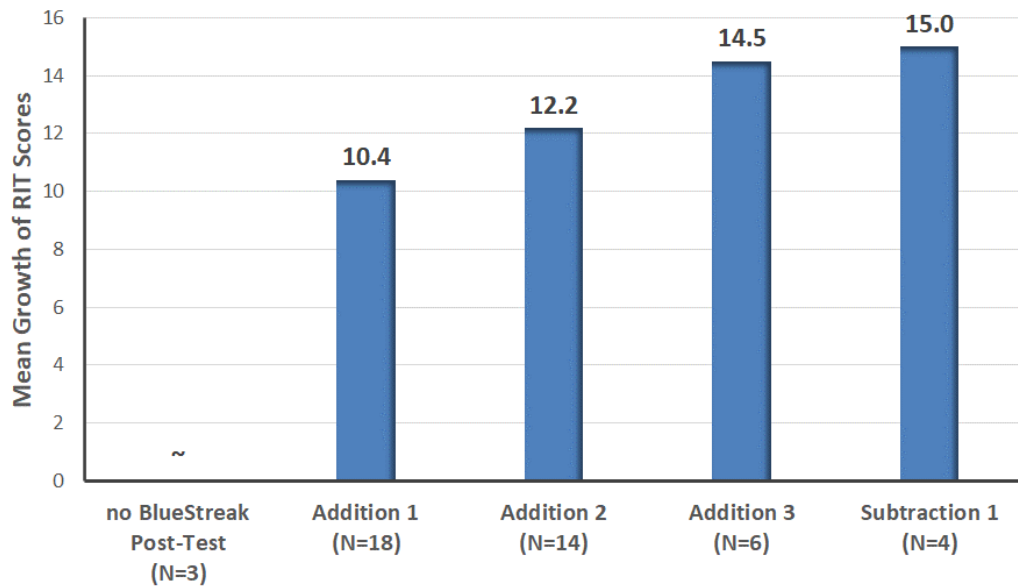


**Figure 4**

**Title 1 School, Grades 3-8**

Growth in Mean RIT Scores on NWEA MAP, Spring 2017 to Spring 2018, for Students Who Received (or did not receive) Pre- and Post-Test Scores on *BlueStreak Math* Levels

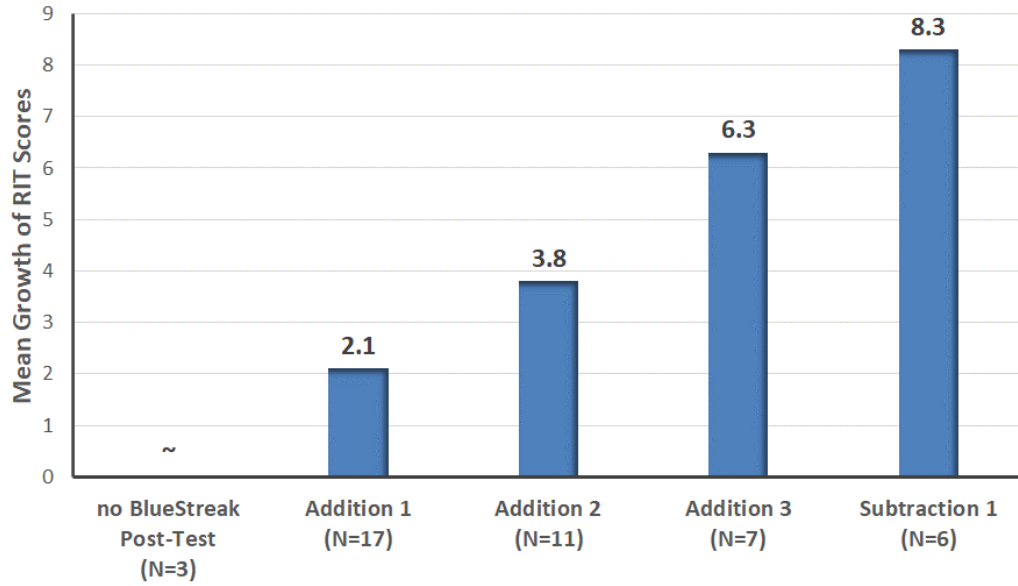
**Grade 4**



**Figure 5**  
**Title 1 School, Grades 3-8**

Growth in Mean RIT Scores on NWEA MAP, Spring 2017 to Spring 2018, for Students Who Received (or did not receive) Pre- and Post-Test Scores on *BlueStreak Math* Levels

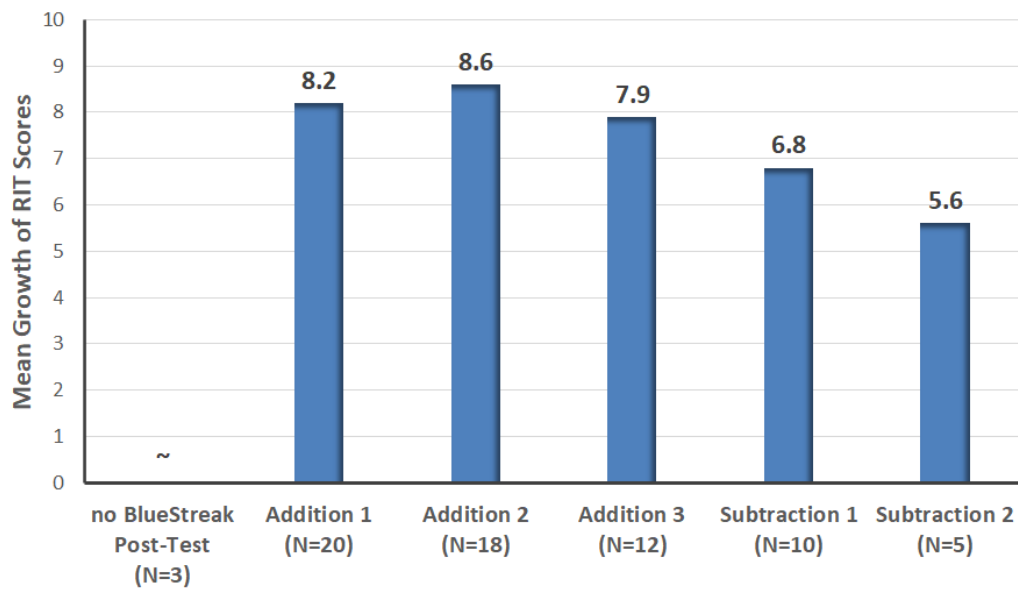
**Grade 5**



**Figure 6**  
**Title 1 School, Grades 3-8**

Growth in Mean RIT Scores on NWEA MAP, Spring 2017 to Spring 2018, for Students Who Received (or did not receive) Pre- and Post-Test Scores on *BlueStreak Math* Levels

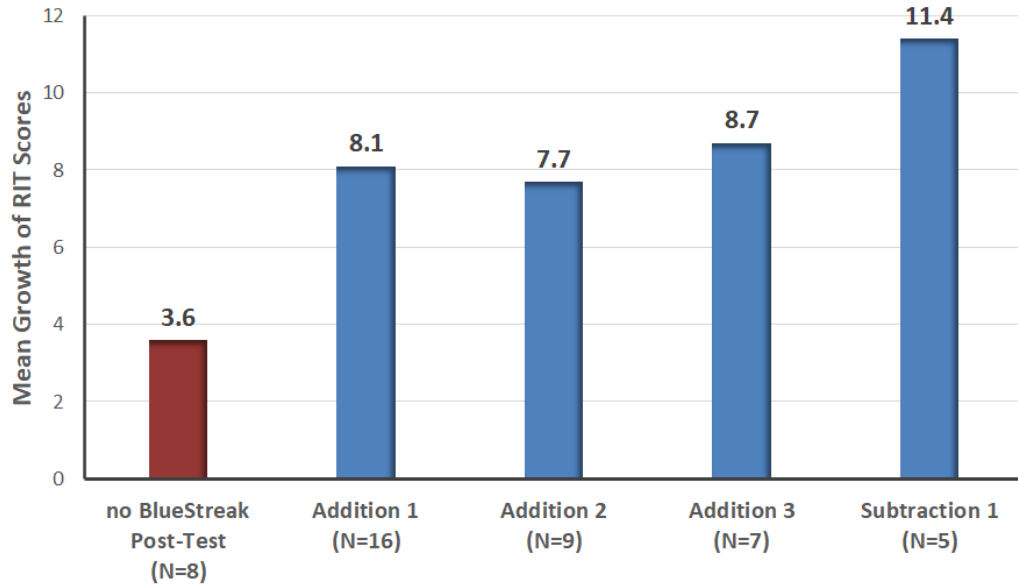
**Grade 6**



**Figure 7**  
**Title 1 School, Grades 3-8**

Growth in Mean RIT Scores on NWEA MAP, Spring 2017 to Spring 2018, for Students Who Received (or did not receive) Pre- and Post-Test Scores on *BlueStreak Math* Levels

**Grade 7**

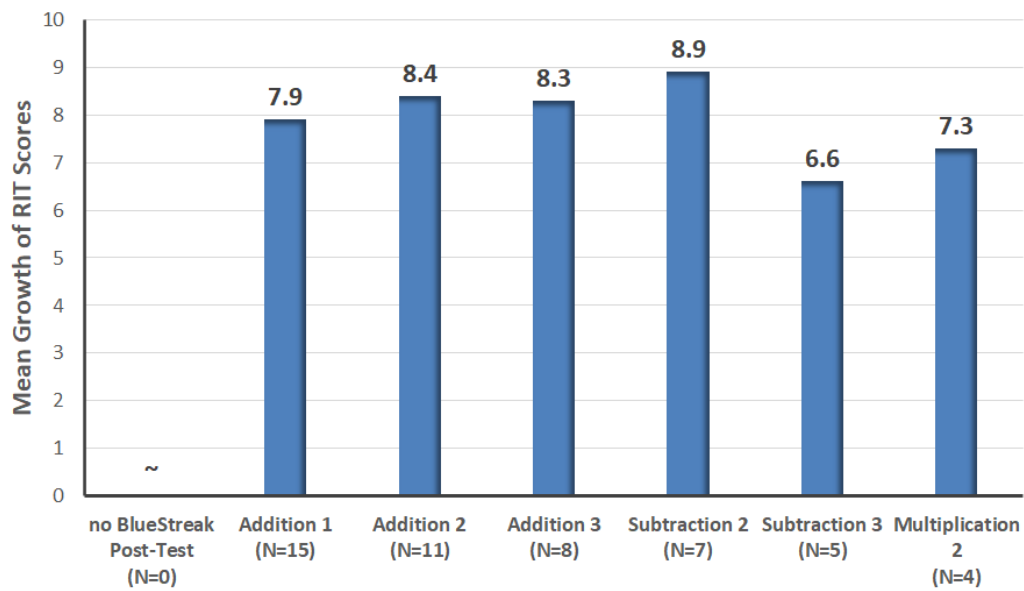


**Figure 8**

**Title 1 School, Grades 3-8**

Growth in Mean RIT Scores on NWEA MAP, Spring 2017 to Spring 2018, for Students Who Received (or did not receive) Pre- and Post-Test Scores on *BlueStreak Math* Levels

**Grade 8**



## Conclusion

Students that took a post-test in BlueStreak Math during the 2017-18 school year experienced higher observed growth in their RIT scores on the MAP tests in Mathematics than those that did not. Furthermore, students that progress through the Addition fluency level tend to experience even higher levels of achievement on the NWEA MAP tests in Mathematics. It is, therefore, plausible to surmise that BlueStreak Math has an impact on student performance.