# First in Math Findings Brief – Conducted by SRI

#### 2016 - 2017 4th Grade First in Math Evaluation Using PSSA Test Scores

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### **Summary of Results**

First in Math is moving the needle on student academic achievement.

#### **Research Question**

Did First in Math increase student academic achievement among 4th grade students who used First in Math in the 4th and 5th quintile (used First in Math for 613 minutes - 12,488 minutes) compared to 4th grade students who used First in Math in the 1st and 2nd quintile (used First in Math for 20 minutes - 332 minutes)?

For this evaluation, we would feel comfortable answering yes to our research question if, based on our data, there was a greater than 90% probability that First in Math increased student academic achievement by at least 50 test score points as measured by 4th Grade Math PSSA test.

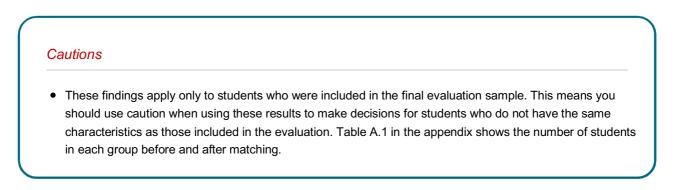
#### Findings

TABLE 1. THE EFFECT OF FIRST IN MATH ON STUDENT ACADEMIC ACHIEVEMENT BASED ON THIS EVALUATION'S DATA.

Grade	Meeting your goal?	Probability that First in Math increased student academic achievement by 50 test score points or more	Estimated size of increase	Comparison group average	Number of students in treatment group	Number of students in comparison group
4	Yes	91%	73	1010	52	52
		90% Thresholds				

Table 1 shows the effect of First in Math on student academic achievement based on this evaluation's data. It indicates the probability that First in Math increased student academic achievement by at least 50 test score points as measured by 4th Grade Math PSSA test, the estimated size of the increase, the average outcome for students in the comparison group (4th grade students who used First in Math in the 1st and 2nd quintile (used First in Math for 20 minutes - 332 minutes)), and the sample sizes for the treatment and comparison groups.

The sample sizes in Table 1 represent the number of students in each group. However, the intervention was implemented at the group (e.g. classroom or school) level.



### About the Evaluation

#### What is being evaluated

This evaluation tested the effectiveness of First in Math. First in Math is an online program intended to increase math fact fluency

asics of First in Math	
Program Type	Practice
Key Components	Multiple opportunities to increase math fact fluency through games and activities
eveloper Implementation Guidelines	the developer recommends 20 minutes per week
Target Outcomes	Mathematics

#### **Evaluation approach**

- This study used a matched comparison design. This is a quasi-experimental design. To compare apples to apples, students using First in Math were compared to other students with similar characteristics.
- Baseline equivalence (or similarity between treatment and comparison groups before First in Math was introduced) was tested in the matching tool using:
  - FEMALE
  - SPEC\_ED
  - GIFTED
  - x504
  - WHITE
  - ASIAN
  - BLACK
  - HISPANIC
  - PSSA\_Gr3\_MATH
- The analysis controlled for:
  - FEMALE
  - SPEC\_ED
  - GIFTED
  - x504
  - WHITE
  - ASIAN
  - BLACK
  - HISPANIC
- Summary statistics from the program evaluation sample are shown in Table A.2 in the appendix.

Setting	Used in 4th grade general classrooms
<b>Delivery Method</b>	individually
<b>Evaluation Period</b>	5 months and 3 weeks
Treatment Group Usage	First in Math was used for 613 minutes or more between October and March
Implementation	No
Considerations	

#### Outcomes

- Student academic achievement was measured using 4th Grade Math PSSA test.
- In the dataset used for analysis, the 4th Grade Math PSSA test results for treatment and comparison group students ranged from a minimum of 845 to a maximum of 1407.
- Table A.2 in the appendix shows differences in baseline charateristics between the treatment and comparison groups without statistical adjustments.

### **Context for the Intervention**

This evaluation studied First in Math's impact on 4th grade students.

School/Distric	t Characteristics	Overall Student Population		
School Type	Public	Non-white	30%	
District Size	4000	Hispanic	10%	
Setting	Suburban	Female	50%	
Location	PA	English Learners	10%	
		Students with IEPs	8%	

## Conclusion

#### **Next Steps**

continue to purchase First in Math