

# Math fact fluency Problem Solved!

# **Grade 2 Test Scores Improve with Reflex**

A study of grade 2 students found that those who regularly used Reflex achieved substantially higher growth on a nationally-normed mathematics assessment than their fellow students with little or no Reflex usage.

### **Program Overview & Results**

During the 2012-2013 school year, 322 grade 2 students from 6 Charlottesville City Schools (VA) had access to Reflex in their math program. The study compared fall and spring Measures of Academic Performance (MAP) test results of high-usage students – those with at least 40 days of Reflex usage between test administrations – to students with low or no usage (0-5 days) during the same time period.

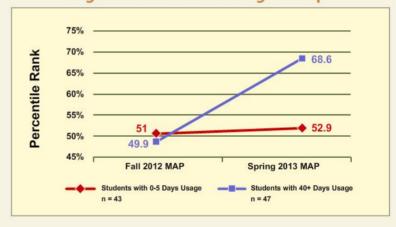
The Northwest Evaluation Association (NWEA) MAP Mathematics test is a nationally-normed, computeradaptive assessment used in many U.S. school districts. By administering the test multiple times during a school year, educators can gain a detailed picture of each student's current mathematical level and measure student growth over time. Because the test is nationally normed, they can also compare their students' growth to that of students across the country.

#### **Student Growth Comparison**

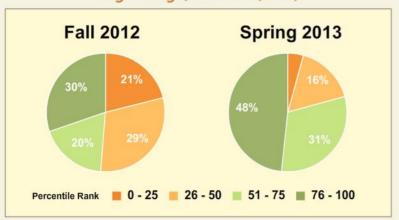
Fall 2012 MAP Math test results indicated starting average scores for both groups fell near the national median. The high-usage group ranked in the 49.9th percentile, while the low-usage group ranked in the 51st percentile.

By the 2013 spring administration, results for the two groups had clearly separated. The high-usage group had advanced to the 68.6th percentile, an increase of 18.7 percentile points, while the lowusage group remained near the national median, increasing 1.9 points to the 52.9th percentile.

#### **MAP Percentile Rank Improvement for High and Low Reflex Usage Groups**



#### MAP Percentile Growth Detail High Usage, Grade 2 (n=47)

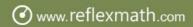


## **Percentile Growth Detail** (High-Usage Group)

High-usage group students at both the low and high ends of national percentile ranks showed strong improvements.

The percentage of high-usage students in the lowest quartile declined from 21% to just 5%; and those in the lower half went from 50% to 21%. At the other end of the spectrum, the fraction of students in the top quartile increased from 30% to 48%.











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## **Grade 4 State Test Pass Rates Rise with Reflex**

A study of grade 4 students found those who regularly used Reflex significantly outperformed their statewide peers on the grade 4 state mathematics assessment.

### **Program Overview & Results**

During the 2012-2013 school year, students from six Charlottesville City Schools (VA) had access to Reflex in their math program. The study examined a group of 40 grade 4 students who used Reflex for at least 40 days (mean usage of 45.6 days). The grade 3 (2012) and grade 4 (2013) state Standards of Learning math test pass rates for this group were then compared to the corresponding statewide averages.

The Virginia Standards of Learning (SOL) math test is an annual assessment that measures what students should know and be able to do at the end of each grade or course. SOL math testing begins in grade 3 and continues through grade 8.

### **Student Growth Comparison**

2012 SOL math test results indicated the Reflex-using students started out roughly on par with their statewide peers. 62.5% passed the grade 3 test in 2012 compared to 64% of students statewide.

After the 2013 SOL test, the year in which the 40 students used Reflex extensively, the two groups diverged substantially. 84% of Reflex-using students passed the grade 4 test in 2013 compared to 74% of students statewide.

The pass rate change for the Reflex-using students grew 22.5 percentage points between the grade 3 and 4 — more than twice the state average change of 10 percentage points.

90%
85%
80%
75%
70%
64%
60%
2012 (Grade 3)
2013 (Grade 4)

CCS Students w/ 40+ Days of Reflex Usage
State Average

**Grade 4 State Math Test Pass Rate and Growth Comparison** 

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