

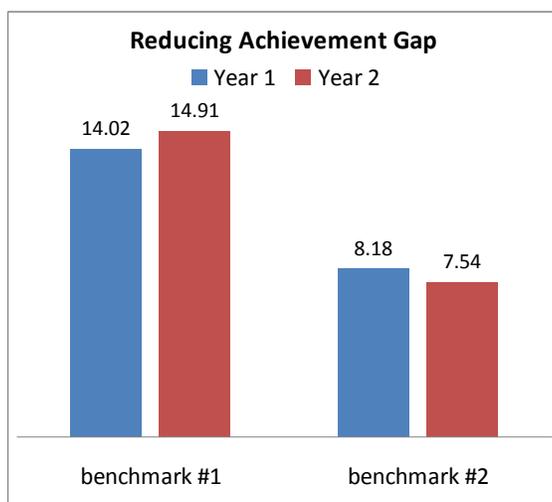
MathForward 2008-9 Report: North Brunswick, NJ

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North Brunswick Township Public Schools is a small suburban school district located in North Brunswick, New Jersey, approximately 25 miles north of Trenton. For the 2008-2009 school year, North Brunswick Township Public Schools implemented MathForward in its 9th grade ITBS Algebra I classes that were specifically designed in 2004 to meet the needs of students who struggled with mathematics or did not pass the New Jersey Grade Eight Proficiency Assessment (GEPA). The ITBS Algebra I classes used MathForward in double-period blocks that met for 86 minutes each day. One of the goals of MathForward implementation was to reduce the achievement gap between students enrolled in ITBS Algebra I and students enrolled in CP Algebra I. There were 8 classes using MathForward in this year; two were “inclusion” classes with special education learning specialists who work closely with the math teachers to assist students with special needs.

Because of the change from GEPA to the NJ ASK 8, a simple analysis of score gains for the year was not possible. Furthermore, District leadership has expressed concern about how sensitive the test is to their curriculum, and especially to the effects of MathForward. Consequently, district leaders concluded that the most meaningful and comparable indicator is to compare the department benchmark tests from 2008 and 2009. The chart below shows a year-to-year comparison of the achievement gap between College Prep Algebra and Integrated Algebra on two school-developed benchmarks

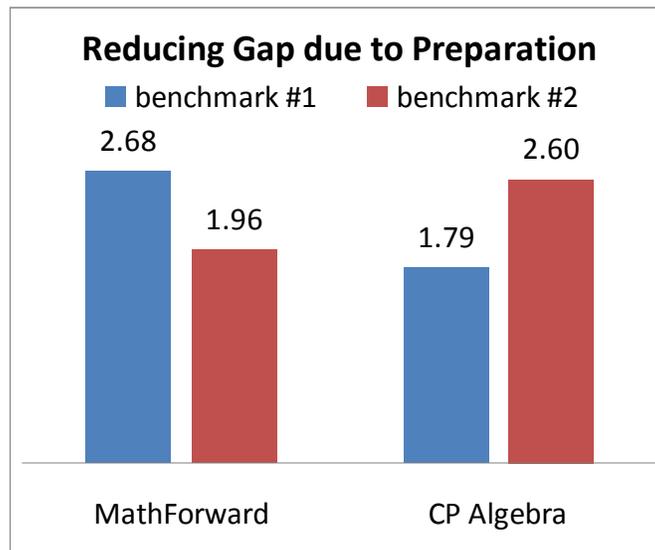


The chart shows the difference in average percent of proficient students between College Prep Algebra and Integrated Algebra on each benchmark each year. Benchmark 1 is pre-algebra concepts (middle school curriculum), benchmark 2 is the first algebra concept benchmark. This chart shows that 14.02% more students scored correctly on benchmark 1 in CP Algebra compared to Integrated Algebra. The difference reduced to 8.18% for benchmark 2 in year 1. In year 2, the initial difference between CP Algebra and Integrated Algebra was higher as shown by the 14.91% difference in number of students in CP Algebra who were proficient on the 1st benchmark compared to Integrated Algebra (This can be explained by the fact that students

coming to Integrated Algebra were weaker in year 2 of the program). However on the 2nd benchmark the difference was reduced to 7.54%. Thus, in Year 2 there was an even stronger effect of the MathForward program with weaker students.

Thus, the data represent a reduced achievement gap between Integrated Algebra and College Prep Algebra. In Year 1, the gap declined from a 14.02% difference to a 8.18% difference in average number of proficient students. In Year 2, the gap declined from a 14.91% difference to 7.54% difference in the average number of proficient students.

We could question whether there was a difference in entering achievement level (preparation) of the classes from Year 1 to Year 2. The chart below examines the effects of entering achievement level (preparation), as shown by proficiency rate on the tests.

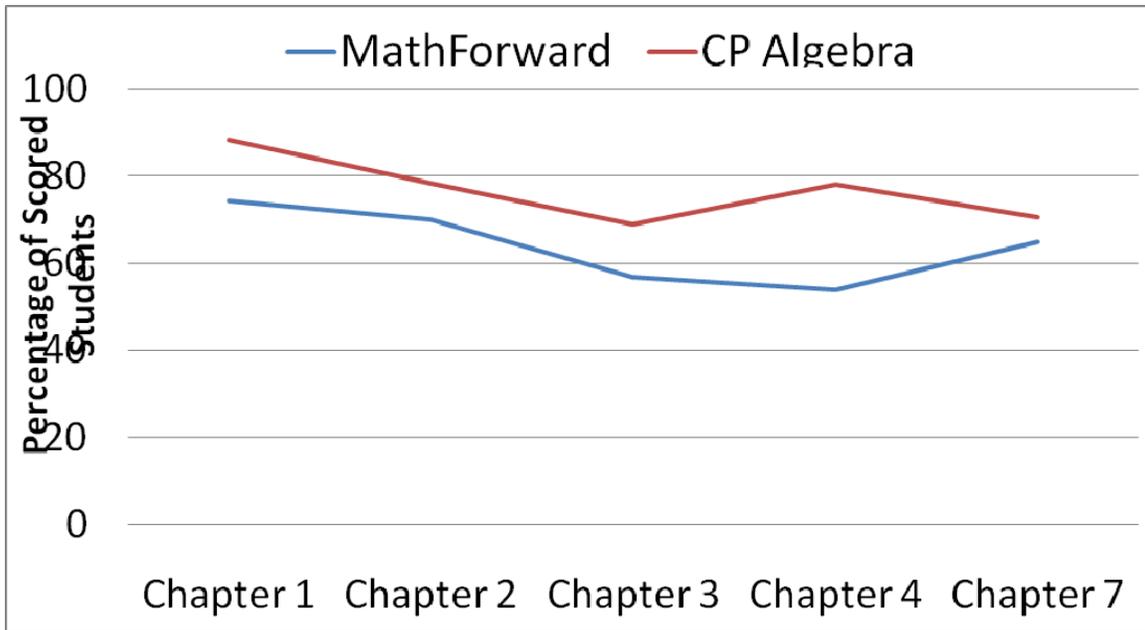


CP Algebra students outperformed MathForward students on all benchmarks. On Benchmark #1, 2.68% more MathForward students in year 1 scored proficient or higher, compared to year 2. Thus, students in year 1 were more ready for algebra than those in Year 2 when entering the program. On benchmark #2, in the MathForward curriculum the year-to-year proficiency gap was reduced to 1.96%. That reduction says that students in year 2 performed worse than students in year 1, but the difference was reduced.

By comparison, in CP Algebra course the year to year gaps increased from 1.79% (Benchmark 1) to 2.6% (benchmark #2). More students performed worse on benchmark 2 in year 2 compared to year 1. Thus, despite the expected better readiness of the CP Algebra students compared to the MathForward students for algebra, the MathForward students improved their proficiency gap, while the CP Algebra students increased theirs.

The analysis is complicated by ongoing concerns of the district over the alignment of the tests in use with their curriculum, and in particular the sensitivity of the tests to the learning enhancements provided by MathForward. Thus, it is possible that the tests in use underestimate the effects of MathForward.

Chapter test performance, shown below, also suggests that MathForward students are closing the achievement gap with the CP Algebra students.



The y-axis is percentage of proficient students, and x – axis shows chapter benchmarks. The general tendency is reduction of the achievement between MF and CP over the course of the year, although some topics were particularly difficult for MF and not for CP (Ch. 4 – Inequalities, including absolute value inequalities).