

Effects of Intensive Math Intervention  
at Fort Stockton Middle School  
A Three Year Model for Success

Gil-Rey Madrid, Principal, Fort Stockton High School

## **Introduction**

Fort Stockton Middle School, located in West Texas, serves 540 students in a district of 2,378 students. Sixty-five percent of our students are economically disadvantaged, 412 are minority students, and many are English language learners. While Fort Stockton Middle School has a rich tradition of outstanding student achievement and provides a sound, standards-based education, some of our students continued to demonstrate weaknesses in math achievement year after year.

As with so many other schools around the country, it was apparent that, school-wide, too many of our students were struggling with math, performing significantly below grade level. Many of our students came to us with skill gaps of up to six or seven years, for which they had to attain proficiency within three, two or, unfortunately, even one year. How could we reasonably expect our teachers to prepare students for higher-level math when many of their students were still functioning at such low-grade levels?

Over the years, we tried several math intervention approaches. Many of our students still did not understand the concepts and continued to perform at significantly lower grade levels.

We knew we needed to find a different math intervention solution that would enable our teachers to teach the concept at grade level, but also meet the needs of those lower-grade level students, supporting a diverse set of needs and different learning styles.

Research shows that if our students failed science and math in the 6th grade, it would increase their risk of dropping out, and we wanted to decrease that likelihood. We knew that the math intervention solution we chose had to identify the skill gaps not mastered in earlier grade levels, and then deliver targeted instruction to close those gaps through a prescriptive course plan that would quickly bring them up to grade level.

We wanted a solution with a strong instructional component that was designed by real teachers for struggling math learners. To support our diverse student population, we needed quality video instruction with extensive, descriptive graphics. To help our students with the more difficult math concepts, we needed educational explorations, manipulatives, and practice to reinforce learning. Other critical needs included easily-accessed, ongoing assessments and understandable reports for teachers, students, and parents to measure progress.

## We Got Help

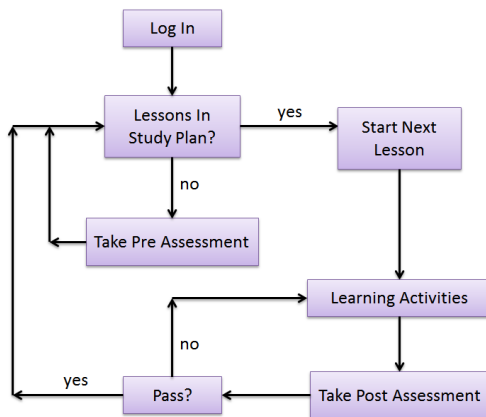
We turned to Ascend Math, an intensive math intervention program combining continuous assessment, targeted instruction, prescriptive tutorials, and progress monitoring tools to give students a direct route to improved math performance. The instructional components of the Ascend Math program are impressive. Master teachers give systematic, step-by-step instruction for students in each particular concept. The research is compelling, demonstrating that Ascend Math closed math gaps by two or more grade levels in a semester.

We identified students with the greatest need in closing the math gaps as the first cohorts of Ascend Math students. These students were those failing their math classes at grading periods, special education students, the Texas Discipline Alternative Education Program (DAEP), our attendance credit recovery Saturday school students, and 8<sup>th</sup> graders who failed the state assessment in math for several years.

## Implementing Well Was Key

Prior to using Ascend Math, students were assigned 30 minute tutorials with math teachers three times per week. This proved to be ineffective and failed to produce the improvements that were so critically needed.

### Student Daily Workflow



Integrating Ascend Math gave our teachers the opportunity to work with more students throughout the week and helped struggling students get back on track. Each student took a computer adaptive Level Recommendation test to find their lowest skill gap. It was no surprise to learn that many of our students had skills gaps three or more levels below their grade. The Ascend Math program then began diagnosing students' strengths and weaknesses and following up by prescribing and delivering targeted instructional activities. Continuous progress monitored by ongoing formative assessments ensured consistency and fidelity of the implementation.

We began with any student who failed a math class for any grading period and expanded to students in a Saturday attendance credit recovery session. All students remanded to the DAEP program were assigned to Ascend Math, and we regularly added students based on identified needs. Students used Ascend Math during their regular math class along with an after-school lab for 50 minutes, two to four times per week. They typically spent 6 to 12 weeks learning with Ascend Math.

## 2010 – 2011 Interventions FSMS

|         | Math Failures (120)    | Special Education (12) | Attendance Recovery (49) | DAEP At-Risk (11)   | 8 <sup>th</sup> Grade TAKS (46) |
|---------|------------------------|------------------------|--------------------------|---------------------|---------------------------------|
| Type    | After School Tutorials | Resource class         | Saturday School          | Alternative Setting | After school & Saturday         |
| Time    | 1-2 hour weekly        | 3 hours weekly         | 4 hours weekly           | 2 hours weekly      | 6-9 hours weekly                |
| Goal    | 50%                    | 75 %                   | 60 %                     | 25%                 | 25%                             |
| Results | 55%                    | 86%                    | 71%                      | 45%                 | 48%                             |

Results are based on state assessments, TAKS

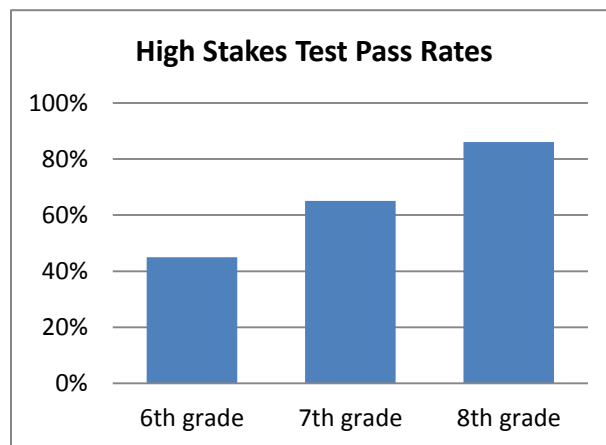
We had 46 eighth grade students who failed the TAKS state assessment test in math on the first administration. We took those 46 students and put them on Ascend Math for three weeks. Four days per week they worked on the program for 75 minutes after school, as well as 4 hours each Saturday. During these three weeks, the students worked on Ascend between 6 to 9 hours. Almost half of the students on Ascend passed the TAKS test on the second administration. Those that did not pass their second attempt only missed passing by one or two questions.

### Results: Year One

It is important to note that use of Ascend Math did not begin until midway through the school year. Below are the results achieved from January through June of that year.

*6<sup>th</sup> Grade:* 69 students working with Ascend 1-2 hours a week resulted in a 45% pass rate. Of those that did not pass, four students gained more than a year's progress in math on the TAKS test.

*7<sup>th</sup> Grade:* 26 students working with Ascend 1-2 hours a week resulted in a 65% pass rate. Of those that did not pass, three students gained more than a year's progress in math on the TAKS test.



*8<sup>th</sup> Grade:* 60 students working with Ascend 1-2 hours a week resulted in a 63% pass rate. Of those that did not pass, 12 students gained more than a year's progress in math on the TAKS test. After the second administration of the TAKS test, the entire 8<sup>th</sup> grade pass rate rose from 74% to 86%. The only real difference was the use of Ascend Math for three weeks, during which the students worked between 6-9 hours each week before the second administration of the test. A selective few had never passed a TAKS math test in middle school, or their entire academic lives, until this year. We attribute this success to the use of Ascend Math.

I especially recall one special education student who was motivated to work over 23 hours on the Ascend Math program. This student received a commended performance on the state assessment in math. After seeing the success that could be achieved in a partial year of use we were anxious to see what we could accomplish the following year.

## Year 2 Implementation and Results

### 2011-2012 FSMS Intervention

|         | Math Study Hall Class<br>112 (0) | ESL Students<br>34 (46) | Math Failures<br>42 (120) | DAEP At-Risk<br>(6) 11 | Special Education<br>31(12) |
|---------|----------------------------------|-------------------------|---------------------------|------------------------|-----------------------------|
| Type    | During School Day                | During School Day       | After School Tutorials    | Alternative Setting    | Resource & RTI class        |
| Time    | 3 ½ hours weekly                 | 1-2 hours weekly        | 1 hour weekly             | 2 hours weekly         | 1-2 hours weekly            |
| Current | 0%                               | 41%                     | 28%                       | 50%                    | 57%                         |
| Goal    | 70%                              | 60%                     | 60 %                      | 60%                    | 75 %                        |

This is in addition to their normal math class

of these students had passed the previous year. In addition, ambitious goals were set for all student groups including ESL, DAEP, and special education students.

As for our district plans, the high school principal stated, *“If you’re having that much success with your students on Ascend Math, I wonder if we need to be using it as well.”* Our Superintendent was even more excited about the potential for the entire district saying, *“Wow! Ascend Math is working well with our students! We need to take a look at expanding its use on other campuses where we have students struggling in Math.”*

It’s important to note that we did not meet Adequate Yearly Progress (AYP) for math the previous year. In this second year of implementing Ascend Math we not only met AYP, our students exceeded the goals we set for them and achieved the highest performance in math of any middle or junior high school in our region. Looking at the AYP TAKS Bridge study, which is how we track AYP in Texas, you can see the substantial improvement.

### AYP TAKS Bridge Study Fort Stockton Middle School

| Fort Stockton Middle School | 2010-2011 AYP | 2011-2012 AYP | Gain/Loss |
|-----------------------------|---------------|---------------|-----------|
| All Students (498)          | 77%           | 86%           | +9%       |
| African American (1)        | 0%            | 100%          | +100%     |
| Hispanic (430)              | 74%           | 84%           | +10%      |
| White (62)                  | 97%           | 95%           | -2%       |
| ECD (325)                   | 73%           | 82%           | +9%       |
| Special Ed (30)             | 65%           | 67%           | +2%       |
| LEP (79)                    | 53%           | 75%           | +22%      |

Passing rates for all students improved from 77% to 86%. Our LEP students went from 53% to 75% passing. Economically disadvantaged students went from 73% to 82% passing.

In planning year two, we started looking at creative ways to schedule class time throughout the day for those students who are struggling most with math.

After the previous partial year of improvement, we still had 112 students who did not pass the TAKS (end of year) test. These students were placed in a math study hall where they used the Ascend Math program throughout the school year. The pass rate goal for these students was set at 70%. None

## Mob of 2011 at FSMS

| 6th         | 7th         | 8th         |
|-------------|-------------|-------------|
| <b>69%</b>  | <b>82%</b>  | <b>96%</b>  |
| <b>2011</b> | <b>2012</b> | <b>2013</b> |

**+ 27%**

## Three Years of Continuous Improvement

From the onset, our biggest challenge came from those students who in 2011 were in the sixth grade. There were over 200 in that class, while our other two grades levels (7th and 8th grade) were at about 150 students each. These students had a large number of failures on past state assessments. They came to be affectionately known as “the mob.” We quickly learned that this group of students required special attention. Our third year of implementation focused heavily on their success. We handpicked their teachers,

changed their tutorial schedules, and allocated resources for a dedicated math computer lab.

The initial passing rate for these sixth graders in the spring of 2011 was 69%. By the Spring of 2012, during the second year of implementation, their passing rate increased to 82%. This was after intense interventions focused on closing math skill gaps utilizing Ascend Math.

After the second year of implementation I moved on from the middle school campus accepting the position of principal at the Fort Stockton High School. Luckily, the former assistant principal at the middle school (now the principal) along with the math teachers, and staff, continued the great implementation we began three years ago resulting in consistently improving results for these formerly struggling students.

At the conclusion of the 2012-13 school year, as eighth graders, these students jumped to a 96% passing rate in math. That’s an improvement of 27% in the passing rate for a group of students that two years ago was in desperate need of improvement. The middle school also received two academic distinctions from the Texas Education Agency. The academic distinctions were Academic Achievement in Mathematics and Top 25 Percent Student Progress.

## Some Keys to Success

1. Having worked in the district for 15 years, I was well positioned to propose to teachers and parents that the Ascend Math program was something different.

I demonstrated how teachers would be able to spend more time working with their struggling students and less time creating lesson plans for the extra tutorials. I could also show that teachers using Ascend were doing better with their struggling students. The little resistance quickly faded as successes became apparent.

2. A major aspect was getting students to work on the program with fidelity. After meeting with students and parents, a rigorous schedule was implemented. Automatic daily phone calls and second phone calls to parents helped as a reminder of the next day's schedule. Students who missed a tutorial session were assigned a make-up day.
3. Parental buy-in was important! Every six weeks we called parents and sent them a letter with the tutorial schedule. We explained how we were trying to help their child excel and that we needed their help to make sure the student attended after hours tutorials.
4. Professional Development: Teachers were trained by Ascend on all aspects of the program including how to set goals for students and interpret readily available reports to easily monitor their progress. Our teachers viewed how Ascend could supplement their teaching and how it addresses many different learner needs that are difficult to meet during the regular school day.
5. Feeder School Buy-In: Close collaboration with our feeder school was important so that skill gaps at the lower grades were closed as much as possible before students entered middle school. *"All our bi-lingual 5<sup>th</sup> grade students passed the Math TAKS test and they were all on Ascend Math."*-Principal, feeder school
6. Progress Monitoring: I made it a personal goal to regularly review the data supplied by Ascend Math's formative and summative assessment. My teachers remained well informed of the progress our students were making.

## Summation

An intensive math intervention product like Ascend Math when implemented with fidelity can produce turnaround even in the most pervasive and problematic student groups. In the year since this data was completed the middle school has continued their exceptional improvement. After two years of use in the high school where I am now principal we see continued improvement with each successive year.

We are proud of what our students, staff, and school have accomplished with the help of Ascend Math.

**To learn more about how Ascend Math students are realizing significant gains at other schools and districts, visit [www.ascendmath.com](http://www.ascendmath.com) or call 1.877.843.0277.**