

# 2011-2012 Study **Madison Park Middle School**

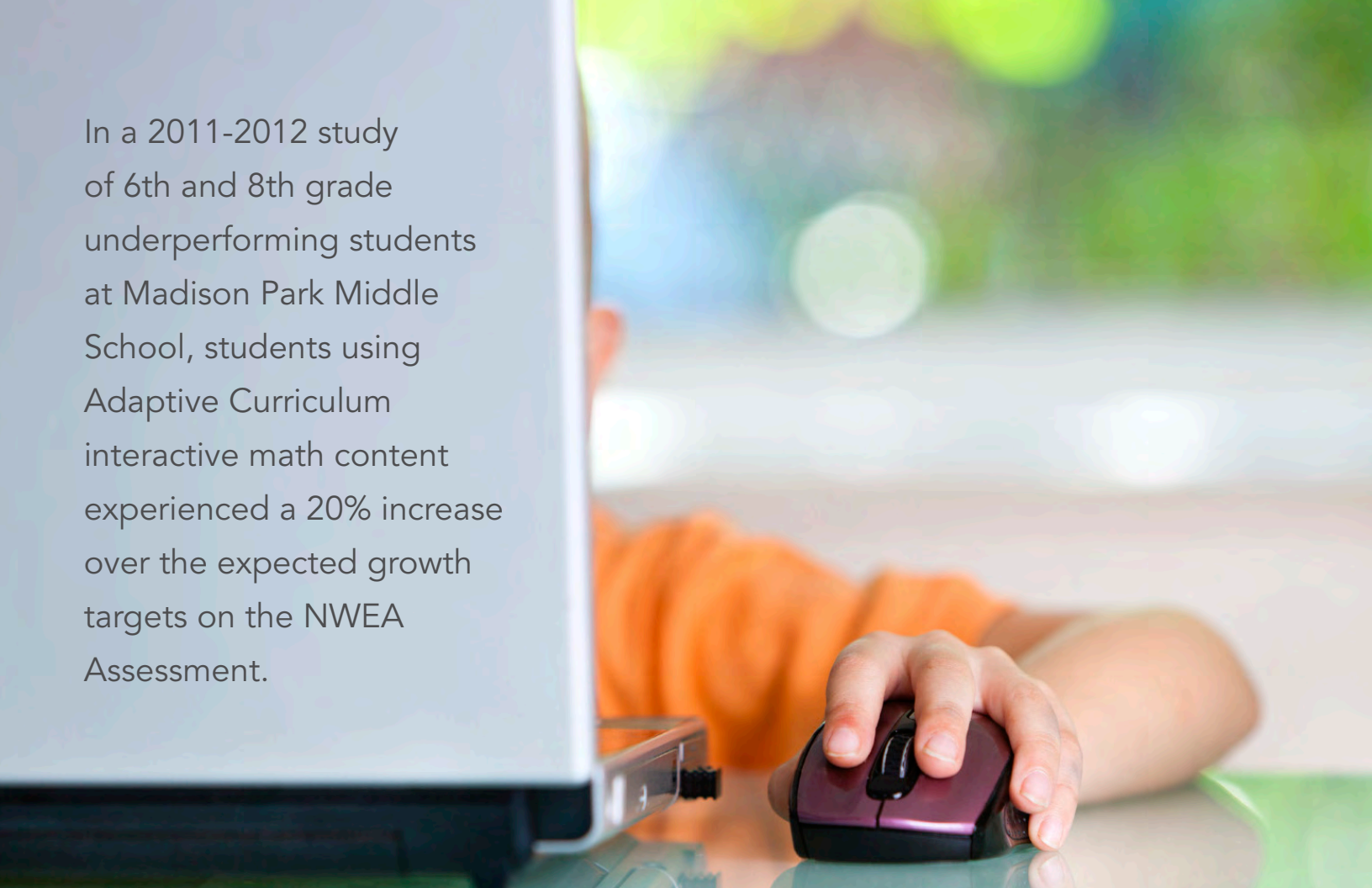
Research shows that deep conceptual learning methods can help students meet rigorous standards in mathematics and science, empowering them to move from simple memorization to deep, meaningful learning.



Read about how the students of Madison Park Middle School of Phoenix, Arizona gained 20% growth in Mathematics.

Study conducted by:

adaptive ™  
curriculum

A photograph showing a student's hand using a purple computer mouse on a desk. The background is blurred, showing a classroom environment with a whiteboard and other students.

In a 2011-2012 study of 6th and 8th grade underperforming students at Madison Park Middle School, students using Adaptive Curriculum interactive math content experienced a 20% increase over the expected growth targets on the NWEA Assessment.

**Adaptive Curriculum is a web-based concept mastery solution that strengthens math and science performance by helping students build a deep understanding of core concepts and skills.**

## Introduction

During the 2011-12 school year, Madison Park Middle School (Madison Park) in Phoenix, AZ integrated Adaptive Curriculum into the math and science curriculum for middle school students (grades 6 and 8). Madison Park has a 1 to 1 computing environment with each student having their own computer and all teachers having a presentation station in their classroom along with an interactive whiteboard. Following the first year of implementation, Madison Park was interested in investigating the effects of Adaptive Curriculum on the mathematics achievement and growth of students.

The purpose of this study was to evaluate the implementation of Adaptive Curriculum at Madison Park. Data from the Northwest Evaluation Association (NWEA) Measures of Academic Progress (MAP) and Arizona's Instrument to Measure Standards (AIMS) were available for analysis. NWEA MAP is a standardized benchmarking test, and AIMS is the standards-based assessment administered by the state of Arizona.

More detailed descriptions of the Activity Objects can be found online at:  
<http://www.adaptivecurriculum.com/us/lessons-library/index.html>

## Materials

Designed for grades 6-12, Adaptive Curriculum engages digital-age learners by integrating real-world scenarios, cutting-edge graphics and interactive simulations into active, standards-based learning. Adaptive Curriculum's instructional units, called Activity Objects, are designed to provide:

- A deep level of math and science content understanding
- Alignment to state, NCTM, NSTA, NSES, and Common Core State standards
- Cross-curricular lesson content
- Interactive, hands-on lessons
- Discovery-based learning
- Real-world simulations, animations, and practice
- Differentiated instruction
- Individual, small group, or whole group instruction
- Interactive whiteboard compatibility
- End-of-activity assessments to track progress and report results
- Accessibility from school or home
- An online teacher space for organizing and assigning lesson



## Methods

As part of a district roll-out plan, sixth-, and eighth-grade students from Madison Park used Adaptive Curriculum during the 2011–12 school year. It was suggested to teachers that they integrate Adaptive Curriculum into their instruction twice a week, at a minimum. The manner in which Adaptive Curriculum content is implemented was based on teacher decision.

The sample consisted of students who had pre-test and post-test scores from the NWEA MAP and/or AIMS assessments. The data was provided to Adaptive Curriculum in three separate data sets: (1) the NWEA MAP dataset, (2) the AIMS data set, and (3) the attendance dataset. The AIMS dataset included demographic and background information. The gender split was near fifty-fifty, with 115 females (47%) and 132 males (53%). Students were asked to select all ethnicities/races that applied. The majority selected white ( $n = 203$ , 82%) and Hispanic ( $n = 165$ , 67%). Students also selected African-American ( $n = 24$ , 10%), Indian ( $n = 17$ , 7%), and Pacific Islander ( $n = 4$ , 2%). In addition, 18 students (7%) were identified as English Language Learners, and 23 students (9%) were in special education.

The NWEA MAP dataset included results from the winter 2012 (given in the fall of 2011) and spring 2012 math assessments. The AIMS data set contained AIMS results for grades 5 through 8 in math. Although AIMS science data was available, a pre-test/post-test analysis was not possible because the science assessment is administered only in grade 8 at the middle-school level.

The attendance data set included data from the 2011-12 school year and was used to eliminate students who did not meet the study parameters. Students whose membership was less than 150 days, or who had more than 10 absences, were excluded from the analysis. Students were also removed if they were listed as having attended another school for part of the school year.

# NWEA MAP Assessment Results

To be included in the NWEA MAP analysis, a student had to have both Fall 2011 and Spring 2012 assessment scores. Table 1 presents the sample size by grade level.

Table 1: Sample size by grade for NWEA MAP assessment.

Madison Park

|              |            |
|--------------|------------|
| 6th Grade    | 83         |
| 8th Grade    | 100        |
| <b>Total</b> | <b>183</b> |

Table 2: NWEA MAP overall score analysis

|                    | Pre-Test |      | Post-Test |      | Difference |
|--------------------|----------|------|-----------|------|------------|
|                    | Mean     | SD   | Mean      | SD   |            |
| Madison Park (6th) | 211.0    | 13.5 | 218.6     | 15.3 | 7.6        |
| Madison Park (8th) | 225.0    | 13.9 | 230.1     | 16.8 | 5.1        |

■ Pre-test Mean  
■ Post-test Mean

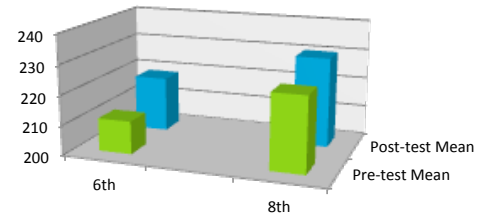


Table 3: NWEA MAP Goal #1 (Number and Operations) analysis

|                    | Pre-Test |      | Post-Test |      | Difference |
|--------------------|----------|------|-----------|------|------------|
|                    | Mean     | SD   | Mean      | SD   |            |
| Madison Park (6th) | 210.2    | 15.1 | 218.3     | 16.6 | 8.1        |
| Madison Park (8th) | 224.0    | 16.0 | 229.0     | 20.0 | 5.0        |

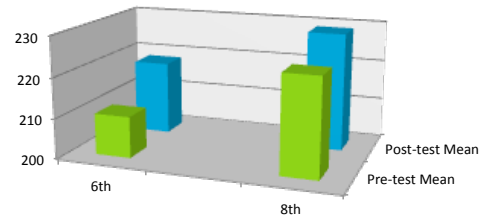


Table 4: NWEA MAP Goal #2 (Data Analysis and Probability) analysis

|                    | Pre-Test |      | Post-Test |      | Difference |
|--------------------|----------|------|-----------|------|------------|
|                    | Mean     | SD   | Mean      | SD   |            |
| Madison Park (6th) | 212.9    | 15.9 | 218.7     | 16.4 | 6.6        |
| Madison Park (8th) | 225.8    | 14.8 | 231.5     | 19.2 | 5.7        |

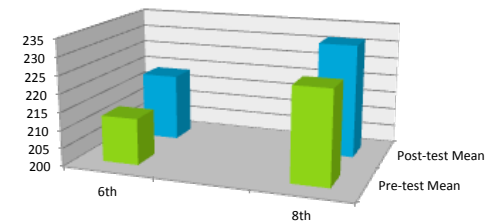


Table 5: NWEA MAP Goal #3 (Algebra) analysis

|                    | Pre-Test |      | Post-Test |      | Difference |
|--------------------|----------|------|-----------|------|------------|
|                    | Mean     | SD   | Mean      | SD   |            |
| Madison Park (6th) | 212.8    | 14.1 | 218.6     | 15.3 | 5.8        |
| Madison Park (8th) | 224.2    | 13.8 | 230.0     | 16.0 | 5.6        |

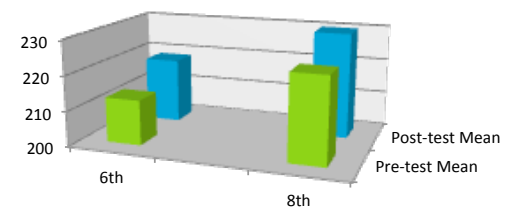
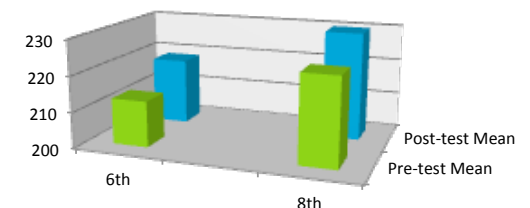


Table 6: NWEA MAP Goal #4 (Geometry and Measurement) analysis

|                    | Pre-Test |      | Post-Test |      | Difference |
|--------------------|----------|------|-----------|------|------------|
|                    | Mean     | SD   | Mean      | SD   |            |
| Madison Park (6th) | 209.0    | 14.0 | 218.6     | 17.7 | 9.6        |
| Madison Park (8th) | 225.6    | 15.6 | 231.0     | 16.7 | 4.5        |



## Arizona's Instruments to Measure Standards (AIMS) Assessment Results

To be included in the analysis of the AIMS Math Test results, a student had to have a score for both the 2011 AIMS and the 2012 AIMS. Table 7 presents the sample size for the participants who were included in the analysis.

Table 7: Sample size by grade for AIMS math assessment.

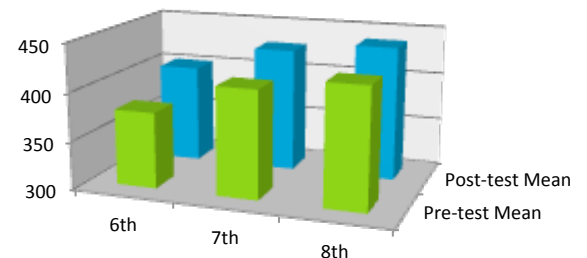
Madison Park

|              |            |
|--------------|------------|
| Grade 5/6    | 69         |
| Grade 6/7    | 74         |
| Grade 7/8    | 104        |
| <b>Total</b> | <b>247</b> |

Table 8: AIMS Math scale score analysis

|                    | Pre-Test |      | Post-Test |      | Difference |
|--------------------|----------|------|-----------|------|------------|
|                    | Mean     | SD   | Mean      | SD   |            |
| Madison Park (6th) | 378.4    | 67.5 | 402.0     | 54.8 | 23.6       |
| Madison Park (7th) | 411.1    | 62.0 | 428.2     | 62.8 | 17.1       |
| Madison Park (8th) | 423.7    | 53.0 | 438.5     | 50.7 | 14.8       |

■ Pre-test Mean  
■ Post-test Mean



## Conclusion

Deep conceptual learning is critical for all students, impacting achievement in the classroom and on standardized test and state assessments

After using Adaptive Curriculum, the math achievement of the Madison Park students in grades 6, 7, and 8 increased at all three grade levels. Whereas the NWEA MAP results indicate that the student's achievement increased across the school year, the AIMS results indicate that the students' math achievement increased beyond the previous school year.

These results are similar to other studies and suggest that using Adaptive Curriculum helps students develop deep understanding in math, which helps to build confidence and drives improved achievement.



Reach out to learn more at [1-888-999-9319](tel:1-888-999-9319) or email [mathandscience@adaptivecurriculum.com](mailto:mathandscience@adaptivecurriculum.com)