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An Accelerated Middle School Mathematics Curriculum: Combined EngageNY Math 6 and Math 7 Curriculum

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AN ACCELERATED MIDDLE SCHOOL MATHEMATICS CURRICULUM: COMBINED *ENGAGENY* MATH 6 AND MATH 7 CURRICULUM

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Abstract

This thesis discusses the importance and benefits of subject acceleration for mathematically gifted students. The objective was to create an accelerated mathematics curriculum for mathematically gifted students by combining the Math 6 and Math 7 *EngageNY* curricula and adapting these curricula to meet the needs of my gifted students. This curriculum is to be implemented in a gifted classroom, which allows students to be on an accelerated path in mathematics. This thesis focuses on the Accelerated Mathematics 6 program implemented for 15 sixth grade gifted and scholastic academy students at Woodlawn Middle School, a school located in Baton Rouge, Louisiana.

Appendix B of this thesis provides the adapted *EngageNY* curriculum called Accelerated Mathematics 6 that I created as part of this thesis project. The Accelerated Mathematics 6 curriculum is comprised of six modules that incorporate sixth and seventh grade CCSS. This curriculum includes teacher and student materials. The teacher materials provide opening exercises, discussions, examples, exercises, extensions, closings, exit tickets, and problem sets. All answers are provided. Therefore, the teacher materials are designed to provide an outline of the course for the entire year. The student materials include guided notes to be given to students. These notes include blank copies of opening exercises (if applicable), examples, exercises, exit tickets, and problem sets for each lesson. In addition, a suggested pacing guide for the year is provided as well as module overviews, table of contents, and mid-module and end-of-module assessments.

Chapter 1: Introduction

In 2010, forty-five states adopted the Common Core State Standards (CCSS), which is a comprehensive list of content standards for kindergarten through twelfth grade (Louisiana's Transition to Higher Standards, 2013, p. 1). These standards are common academic standards for English and mathematics. States adopted these standards in hopes of better preparing students for college and career readiness as well as establishing a common set of standards that lead to an equitable educational baseline that can be assessed nationwide (About the Standards | Common Core State Standards Initiative, n.d.).

Prior to the adoption of the CCSS, Louisiana schools taught Grade Level Expectations (GLEs) through the use of the Louisiana Comprehensive Curriculum (LCC). The GLEs were standards that were assessed on statewide tests called the iLEAP and LEAP. The GLEs were broad descriptors that offered planned redundancy in material between grade levels. With the redundancy of material provided by the GLEs, Woodlawn Middle School chose to accelerate its gifted and great scholar students at least one grade level, which provided an opportunity for these students to leave middle school with at least one high school credit, Algebra I.

The transition to the CCSS in Louisiana created an obstacle for Woodlawn Middle School. The East Baton Rouge School System, the local school district for Woodlawn Middle School, adopted the common core aligned *EngageNY*[1] curriculum. Gifted and great scholar teachers alike saw a big discrepancy in the opportunity to advance their population of students. After trying to teach sixth grade students the seventh grade *EngageNY* curriculum, it became apparent to teachers that a change would need to occur the following year. Too many gaps in the material needed to be addressed in order to cover all of the necessary seventh grade material.

[1] All *EngageNY* materials were taken from the *EngageNY* website: https://www.engageny.org/common-core-curriculum

With this in mind, I decided to write an adapted version of the *EngageNY* curriculum in which I combined both the sixth and seventh grade *EngageNY* curricula. This curriculum has since been titled Accelerated Mathematics 6.

In order to create the Accelerated Mathematics 6 curriculum, I first examined the *EngageNY* modules from both grade levels. I looked at the topics covered and the standards to be taught. Additionally, I looked for any overlaps or similarities in the material. Then, I decided which modules would be easiest to combine. For example, in the Grade 7 *EngageNY* curriculum, ratios and proportions are first taught in Module 1 and then revisited again in Module 4. Since these two modules are so closely related and cover the same topics, I combined these two modules into one. Next, I chose how to reorder the modules to avoid gaps that occur throughout the student learning process. I considered feedback from my colleagues as well as the struggles that my sixth grade gifted and scholastic academy students had when I taught them the Grade 7 curriculum the previous year. After reviewing my notes and my coworkers' feedback, I changed the order of the modules. Finally, I focused on the lesson topics and the standards covered in each lesson in order to determine which topics required more focus and which topics were considered to be supplemental by *EngageNY*. The areas of major focus can be found in the Story of Ratios: Curriculum Map and Overview for Grades 6-8 document on *EngageNY*'s website (Grades 6-8 Mathematics Curriculum Map | EngageNY, n.d.).

My student population for the Accelerated Mathematics 6 course included fifteen gifted students with different gifted background settings (pullout gifted settings versus inclusion gifted settings) and mathematical capabilities. Some of these students were placed in the gifted classroom setting as scholastic academy students, which means they are able to participate in a gifted classroom for two years and at the end of two years they will be tested for giftedness (East

Baton Rouge Parish School System, *Gifted and Talented Programs—Scholastic Academy*). My co-worker taught two great scholar courses that included a total of thirty-nine great scholar students. Both the gifted and great scholar courses met daily for ninety minutes. The Accelerated Mathematics 6 curriculum was utilized in both the gifted and great scholar courses. Through the use of the Accelerated Mathematics 6 curriculum, the majority of my students were successful, which is explored in Chapter 5. Their level of success was measured through benchmark assessments administered throughout the school year, student feedback, and parent feedback.

After teaching this accelerated curriculum and evaluating the overall success of the curriculum, I strongly recommend that this curriculum should be implemented at Woodlawn Middle School regardless of the standards being taught in the state. With the recent controversy over the CCSS, the curriculum and standards that Louisiana and the East Baton Rouge Parish School District will implement remains uncertain. Regardless, the Accelerated Mathematics 6 curriculum that has been adapted from the *EngageNY* curriculum is certainly a beneficial curriculum with respect to preparing motivated students for upper level math courses at the middle school level. This curriculum compacts two grade levels into one, while still maintaining the rigor of the standards and covering all key concepts that need to be learned in order for students to be successful in higher-level mathematics courses.

This thesis describes the importance of creating and implementing an acceleration plan for gifted students. The definition of acceleration, the need for acceleration for mathematically gifted students—particularly subject acceleration—as well as the benefits of acceleration are discussed and supported with research evidence. An in-depth explanation of the acceleration plan for Woodlawn Middle School gifted and great scholar students is provided and data results

from the accelerated course is given and compared with results from the entire Woodlawn Middle School population. Suggestions are made for improving the current acceleration plan at Woodlawn Middle School as well as recommendations for other educators on how to successfully implement the accelerated curriculum.

Chapter 2: Literature Review

With the implementation of the No Child Left Behind Act in 2001, a great emphasis has been placed on ensuring all students are proficient in grade-level math and reading by 2014 (Background & Analysis, *No Child Left Behind—Overview*). Consequently, the focus shifted to preparing students to perform at their current grade level. Thus, those who are academically gifted were often overlooked, and their needs were not met (Colangelo, N., Assouline, S.G., & Gross, M.U.M., 2004, p. 2). When academically gifted students are not given opportunities that meet their individual needs, often their sense of enthusiasm for the content is squandered (McAllister, B. & Plourde, L., 2008, p. 40). "The call for greater challenge in the curriculum is among the most frequent and consistent areas of advocacy among those who work with and for gifted students at every level of development" (Little, C.A., 2012, p. 696). Therefore, the focus should no longer be solely on guaranteeing that students are proficient at their grade level but should also incorporate an emphasis on those students who are capable of performing at a higher level.

2.1 Need for Acceleration

In order to address these needs, schools often adopt interventions in order to motivate those students who are academically gifted. One type of commonly used intervention is acceleration. "Acceleration is an educational intervention based on progress through an education program at rates faster or at ages younger than typical" (Colanegelo, N., Assouline, S.G., & Gross, M.U.M., 2004, p. 1). Acceleration is a form of intervention that is implemented in schools across the nation and is usually focused on those students who are academically gifted. "Acceleration practices provide the appropriate level of challenge and reduce the time necessary for students to complete traditional schooling" (Colangelo, N., Assouline, S.G., & Gross, M.U.M., 2004, p. 1). Those students who are mathematically gifted can master material

at a much faster rate than those who are not mathematically gifted and perform at a higher level than their fellow classmates (McAllister, B.A. & Plourde, L.A., 2008, p. 41). Not only does acceleration have a positive effect on the students academically, it also helps them emotionally. Students are often more motivated in the accelerated subject, and their confidence in their abilities improve (Hannah, J., James, A., Montelle, C., & Nokes, J., 2011, p. 300). "Moreover, research suggests that children who are gifted but not accelerated exhibit more behaviour problems, feel less comfortable, and have poorer attitudes towards school" (Rawlins, P., 2004, p. 44). Therefore, it is essential for schools to address the need for acceleration of academically gifted students and abandon the concept that one curriculum will meet the needs of all students. Schools should no longer rely on adopted textbooks that are designed for all students to use at one grade level (McAllister, B. & Plourde, L., 2008, p. 41). Schools must take into consideration that no single textbook will suit the needs of every child at the school, whether the student is a high performer or a low performer. Little (2012) states, "educators responsible for working with gifted learners—and with learners in general—must focus on ensuring learning opportunities that are appropriately challenging and meaningful for students, thereby promoting a sense of value and motivation in the learning environment" (p. 702). Thus, a modified curriculum such as the Accelerated Mathematics 6 curriculum is helpful for schools to reach those students who are deemed academically gifted.

2.2 Subject Matter Acceleration

Acceleration can be defined several ways. According to Rawlins (2004), "any program that results in student placement in a higher year level, with ability to sit higher level assessments earlier than their age cohort can be thought of as acceleration" (p. 43). That is, students who are provided the opportunity to participate in a higher-level course than their peers and to take

assessments decided for these upper level courses are considered accelerated. Although there are several types of acceleration possible for gifted students, the focus of this thesis is on subject matter acceleration in mathematics. Subject matter acceleration allows students to work above grade level in one subject. For example, our Accelerated Mathematics 6 curriculum allows students to take both Grade 6 and Grade 7 mathematics courses in one year. Therefore, those students enrolled in the Accelerated Mathematics 6 course will be accelerated one grade level in mathematics.

2.3 Mathematically Gifted Students

Academically gifted students can be gifted in all subject areas or specifically in one subject. For instance, "mathematically gifted students are identified through their advanced reasoning capabilities and their passion for mathematics" (Diezmann, C.M & Watters, J.J. 2002, p. 2). They "are able to see relationships among topics, concepts, and ideas without intervention of formal instruction specifically geared to that particular content" (Rotigel, J. & Fello, S., 2004, p. 47). Often, mathematically gifted students are capable of solving problems without showing all of the necessary steps to arrive at the answer and sometimes have difficulty explaining how they arrived at their final answer (Rotigel, J. & Fello, S., 2004, p. 47). According to Rotigel and Fello (2004), "a great deal of research supports the conclusion that gifted students need to use advanced materials and curricula if they are to reach their potential" (p. 48).

2.4 Benefits of Acceleration

There are several benefits of acceleration for gifted students. Often, teachers like to praise their students for getting the correct answer or for showing all of their work (McAllister, B.A. & Plourde, L.A., 2008, p. 44). However, praise for hard work and praise for getting the correct answer are two different things (McAllister, B.A. & Plourde, L.A., 2008, p. 44). It sends

the wrong message to praise students for getting the correct answer to problems that require little to no work. McAllister and Plourde (2008) state,

> Typical students are given this opportunity for success throughout their school career. They are challenged, they make the choice to work hard, and they are rewarded with the feeling of success. When the curriculum does not challenge the gifted student and it becomes expected that they do well because they are smart, they are not given these baby steps to understand that intelligence is incremental (p. 44).

Acceleration provides gifted students the chance to challenge themselves and the opportunity to have to exert more effort in order to be successful in the course. When placed in typical classes, gifted students are not as challenged and, therefore, do not have to put forth as much effort as they would enrolled in accelerated courses. Furthermore, accelerated students "outperform students of the same age and ability who are not accelerated" and "achieve as well as equally gifted older students in the higher grades" (Kulik, J.A. & Kulik C.C., 1984, p. 87). The accelerated gifted and scholastic academy students who participated in our Accelerated Mathematics 6 course not only outperformed the other six grade students at their school, but the seventh grade students as well. This is explored in Sections 5.1 and 5.2 of this thesis.

Chapter 3: Accelerated Mathematics Program

3.1 Woodlawn Middle School Demographics

Woodlawn Middle School (WMS) is located in Baton Rouge, Louisiana and is a part of the East Baton Rouge Parish School System. During the 2013-2014 school year, WMS earned a ranking of a B school with a School Performance Score (SPS) of 87.0 (Louisiana Believes. *School Report Cards*). The average SPS in the state is 81.0 (Louisiana Believes. *School Performance Scores/Letter Grades*). Out of 1,310 schools in Louisiana, 562 schools have a SPS that is greater than WMS (Louisiana Believes, *School Performance Scores/Letter Grades*). In Louisiana, each elementary school (K-6), middle school (7-8), and high school (9-12) is given an SPS. At the middle school level, a school's SPS is based on student achievement and the number of credits earned through the end of the students' ninth grade year (Louisiana Believes. *School Performance Score*). Based on the SPS, 20% of WMS students were performing above grade level, 47% of WMS students were performing at grade level, and 33% of WMS students were performing below grade level (Louisiana Believes, *School Report Cards*). Overall, 67% of WMS students were on or above grade level (Louisiana Believes, *School Report Cards*).

During the 2014-2015 school year, 897 students were enrolled at WMS. The sixth grade class was comprised of 277 students, the seventh grade class of 282 students, and the eighth grade class of 338 students. There has been a slight decline in the number of sixth and seventh grade students at WMS due to the opening of Brookstown Magnet School (BMS). This is a traditional public school for the neighborhood that also has a magnet component. Sixth and seventh grade students who were formally bused to our school in the past were moved to this new school. This upcoming school year, BMS is adding an eighth grade, which will continue to pull students from WMS. The make-up of the school consists of 58.64% African Americans,

26.98% Caucasian, 9.92% Hispanic, 4.24% Asian, and 0.22% of other ethnicities. Out of the 897 students, 74.8% participated in regular education, 10.1% were in special education, and 11.8% were classified as gifted (Enrollment Update Report provided by principal). On the 2014 state assessments at the middle school level, iLEAP and LEAP exams, 69.5% performed at the proficient level in mathematics (Principal Report Card provided by principal).

The Accelerated Mathematics 6 course taught in 2014-2015 was comprised of ten gifted students and five scholastic academy students. In East Baton Rouge Parish, students may participate in a program called the scholastic academy without having been classified as gifted. Through this program, students may be placed in a gifted setting classroom for two years. During these two years, students must maintain the grade requirements and are eventually screened for admittance into the gifted program (East Baton Rouge Parish School System, *Gifted and Talented Programs—Scholastic Academy*).

During the spring semester of the 2013-2014 school year, all WMS students took the Grade 5 iLEAP exam. The iLEAP achievement levels range from the Unsatisfactory level to the Advanced level. Students performing at the Basic level or higher are considered proficient. Table 1 (*2014 Operational Technical Summary*, 2014) shows the achievement levels for the Grade 5 math iLEAP exam.

Table 1: Grade 5 Math iLEAP Achievement Levels

Achievement Level	Scaled Score Range
Advanced	405-500
Mastery	355-404
Basic	282-354
Approaching Basic	250-281
Unsatisfactory	100-249

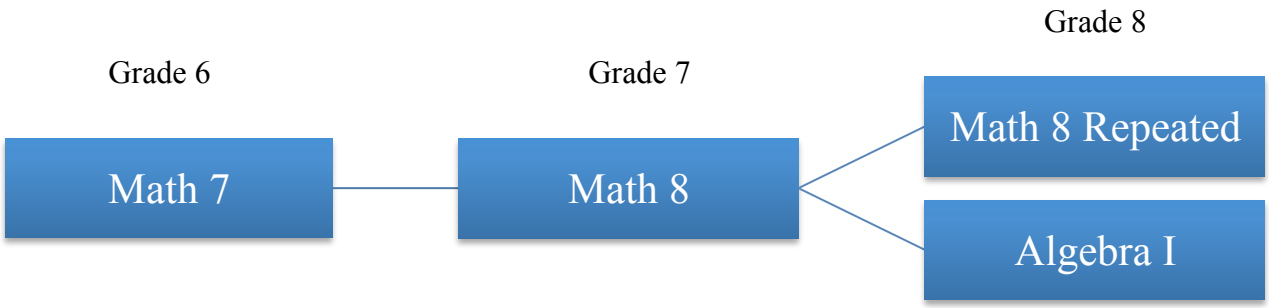
On the 2014 Grade 5 math iLEAP exam, those in the Accelerated Mathematics 6 scores ranged from the Basic level to the Advanced level. Four students scored at the Advanced level, four students scored at the Mastery level, and five students scored at the Basic level. Two of the fifteen students did not have iLEAP scores because in the previous year, one had attended a private school and one had attended a school in another state. Because all of the Accelerated Mathematics 6 students scored at the Basic level or above on the 2014 Grade 5 iLEAP exam, all of the students were considered to be proficient.

3.2 Previous Acceleration Plan

Prior to the implementation of the CCSS, WMS taught GLES through the use of the Louisiana Comprehensive Curriculum. GLEs were created in 2003 and were designed to identify the content knowledge each student should gain after each year of schooling. The GLEs offered planned redundancy in the sixth and seventh grade levels, therefore, allowing educators a chance to accelerate students without fear of compromising the expectations set forth by the state.

WMS developed a plan that allowed gifted and scholastic academy students to accelerate at least one grade level in mathematics. A placement test was given to upcoming gifted fifth grade students at local feeder elementary schools. Based on the scores on this placement test, gifted students were assigned to one of two pathways as sixth graders. The pathways can be seen below.

Option 1:



Option 2:

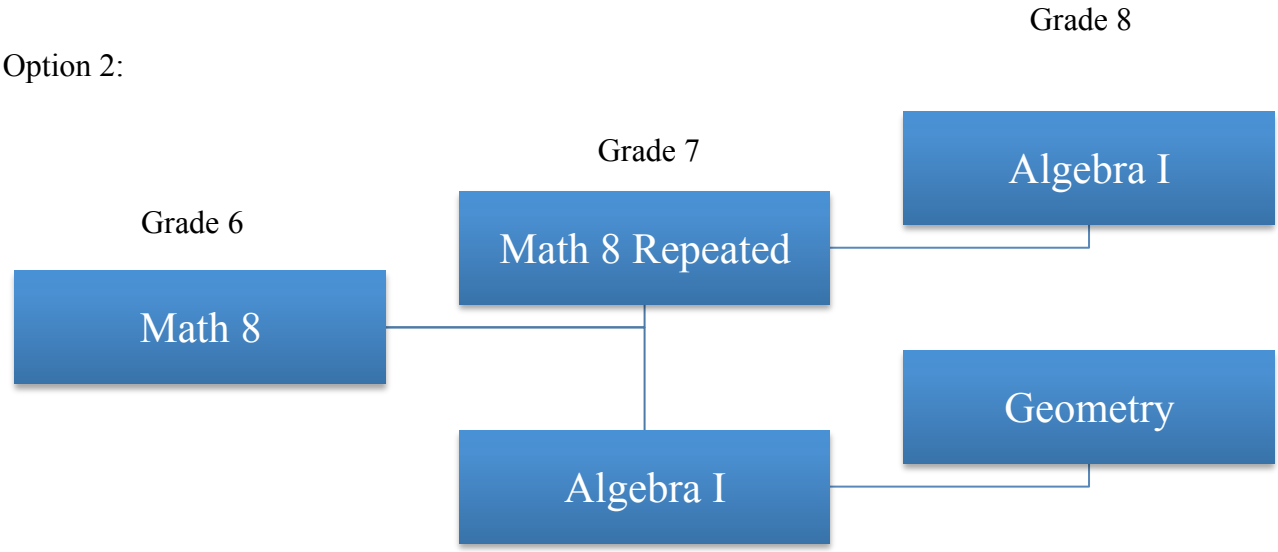


Figure 1: Previous Acceleration Paths

The first option represents the course that incoming gifted and scholastic academy sixth graders would take. That is, they would take Math 7, where teachers would teach the entire seventh grade GLEs and incorporate any sixth grade GLEs that the students seemed to struggle with based on the previous placement test taken as fifth graders. Next, those students would take Math 8 as seventh graders. At the end of their seventh grade year, students would take an Algebra I placement test, which students would be required to pass with a minimum of 70% in order to take Algebra I as an eighth grade student. Their scores on this placement test would determine whether they took Math 8 again or whether they would move on to Algebra I. Option

2 follows a similar path. However, sixth grade gifted and scholastic academy students would start their middle school career with Math 8.

This previous acceleration plan enabled many gifted and scholastic academy students to leave middle school with at least one high school credit in mathematics. Although some of these students would have to repeat Math 8, it seldom occurred. This plan proved to be successful as all gifted and scholastic academy students who took either Algebra I or Geometry scored in the top tiers on the state's End of Course (EOC) tests, which is a statewide assessment given to any public school student currently enrolled in Algebra I and Geometry.

3.3 Gaps in the Previous Plan

Once Louisiana adopted the CCSS, the previous acceleration plan implemented at WMS proved troublesome for students and teachers alike. During the 2013-2014 school year, the first year in which Louisiana fully transitioned to CCSS, the East Baton Rouge School Parish District decided to adopt a curriculum titled *EngageNY*. With little notification of this adoption, the educators at WMS continued to implement the plan set forth in years past. Thus, sixth grade gifted and scholastic academy teachers would teach sixth graders either the seventh or eighth grade *EngageNY* curriculum. After a few weeks teaching this new curriculum, the teachers realized that an alternate plan would have to be implemented in the upcoming years. The teachers who taught the Grade 7 curriculum to sixth grade gifted and scholastic academy students realized that the new Grade 7 curriculum was not redundant in material as it had been previously with the GLEs. Therefore, there were several gaps in the curriculum that teachers had to account for. Section 3.3 of this thesis focuses on the gaps found when implementing the previous acceleration plan at WMS.

We began the 2013-2014 school year with Module 1 of the *EngageNY* Grade 7 curriculum entitled Ratios and Proportional Relationships. This module was designed to expand on Grade 6 CCSS that include ratios, rates, and unit rates. The concept of rates and unit rates is a sixth grade standard. Therefore, the students were unfamiliar with the terminology and supplemental lessons were required before moving ahead in the curriculum. Module 1 Lesson 8 "Representing Proportional Relationships" is another topic students struggled with because this lesson introduced the task of writing equations. This lesson asked students to write an equation for proportional relationships given a table and a graph. The students were able to determine the constant of proportionality given a table fairly easily, but working with the graphs was difficult for them. The students were not familiar with graphing in the coordinate plane. The sixth grade standard 6.RP.3A requires students to create a table of equivalent ratios and graph the points on the coordinate plane (Grade 6). At this point in the year, my sixth grade gifted and scholastic academy students did not possess this skill. As a result, this was another topic that had to be supplemented. Furthermore, students struggled with using the equation for a proportional relationship, $y = kx$, to find the constant of proportionality, $k = \frac{y}{x}$, given an x- and y-value. Module 1 Lesson 11 "Ratios of Fractions and Their Unit Rates" is another topic where students struggled. Prior to this year, not all students were familiar with dividing fractions. Therefore, additional class time was spent introducing this concept to students before moving forward with the *EngageNY* curriculum.

Module 2 entitled Rational Numbers relies on the fact that students already mastered the key concepts of integers on the number line as well as their opposites on the number line, ordering and comparing integers, and finding the absolute values of integers. Module 2 Lesson 1 "Opposite Quantities Combine to Make Zero" assumes that the students are already fluent in

these concepts. However, after beginning this lesson and realizing that the students were unfamiliar with the terms integer and absolute value, the teachers realized it was essential to go back and cover these gaps that were missed by skipping straight to the Grade 7 curriculum. In addition, Module 2 Lesson 18 "Writing, Evaluating, and Finding Equivalent Expressions with Rational Numbers" proved difficult for students because they were unfamiliar with the term "variables" and how to use variables when writing expressions. This proved to be the most troublesome topic for students in this module. Several days were spent on reviewing expressions and their properties, which caused days to be taken away from future topics of study.

Module 3 entitled Expressions and Equations was the most difficult module to teach using the previous implementation plan. This module focuses on creating equivalent expressions by combining like terms, solving equations, writing and solving equations to solve angle problems, solving and graphing inequalities, and using equations and inequalities to solve geometry problems. Module 3 expects students to have mastered the concepts of order of operations; writing and solving expressions and equations; inverse operations; and solving one-step, two-step, and multi-step equations. Furthermore, students should be familiar with the concept of inequalities and how to write and graph inequalities based on sixth grade CCSS. None of these topics were reviewed in Module 3 of the Grade 7 curriculum. Thus, the teachers struggled with covering this material while going through each lesson of the Grade 7 curriculum. Major gaps were noticed and were frequently addressed throughout the entire module. Time became a serious issue in the ability to cover all of the necessary material.

Module 4 entitled Percent and Proportional Relationships began smoothly as it covered percent and how to represent a percent as well as how to find the whole. Since students learned about fractions and decimals as well as equations in Modules 2 and 3, they did not seem to

struggle with the first topic, which introduced finding the whole. Percent, part of a while, percent increase and decrease, and fluency with percents was all discussed in the first topic. The second topic, which included percent problems, also did not seem difficult for students since the problems built on prior knowledge of how to write and solve an equation. The rest of Module 4 seemed redundant as it reviewed scale drawings, which is a concept that is covered in Module 1. Thus, the teachers agreed that scaled drawings should either be taught in its entirety during Module 1 or during Module 4 but not in both.

Module 5 entitled Statistics and Probability was one that did not receive much emphasis due to time constraints. This module was not taught in its entirety; instead, the teachers highlighted the key concepts found in the module. This module was also moved to the end of the year to be taught after Module 6.

The beginning portion of Module 6 entitled Geometry was somewhat redundant. The first four lessons involve solving for unknown angle measures using equations, which is also covered in Module 3. The most difficult topic was surface area and volume. Although surface area and volume were briefly discussed in Module 3, the students still struggled with the concepts. Traditionally, three-dimensional figures and surface area are first introduced using nets, which is a sixth grade standard. Therefore, prior to introducing slicing three-dimensional figures and going into in-depth lessons regarding surface area and volume, the teachers referred to the Grade 6 Module 5 *EngageNY* lessons that included nets for three-dimensional figures.

3.4 Need for a New Acceleration Plan

With the implementation of the CCSS in Louisiana, gaps could be expected in the students' knowledge. According to the article "Louisiana's Transition to Higher Standards," student achievement on the Louisiana state assessments is improving (2013, p. 2). In fact, on the

2012 LEAP and iLEAP exams administered to fourth and eighth grade students, 70% of the students were performing on grade level. However, on the National Assessment of Educational Progress, only 25% of the students scored at the proficient level. Therefore, "Louisiana's definition of proficiency is much lower than other states" (Louisiana's Transition to Higher Standards, 2013, p. 2). This information indicates that before CCSS there already existed a gap between Louisiana's definition of proficient and a national definition of proficient. Therefore, it is not surprising that these gaps would appear upon implementing a national set of standards. Thus, teachers must make the appropriate adjustments to their previous ways of teaching in order to overcome obstacles set forth by the adoption of the standards.

Woodlawn Middle School experienced this firsthand when trying to fit the CCSS into its previous mold of how to accelerate its gifted, scholastic academy, and great scholar students. Implementing the Grade 7 *EngageNY* curriculum without integrating any of the Grade 6 CCSS proved troublesome for both the teachers and students. Constant barriers had to be crossed in order to appropriately accelerate these students. Supplemental activities and material had to be implemented throughout the year in order to overcome the educational gaps, which led to a lack of time for some material to be covered. Therefore, teachers and administers at WMS agreed that a change must be made to the previous acceleration plan for gifted, scholastic academy, and great scholar students.

Although the Grade 7 *EngageNY* curriculum was difficult to implement, the difficulties came more so from the implementation process and not the lessons themselves. Therefore, the teachers decided that the *EngageNY* curriculum was still a beneficial resource to use for their students because the curriculum provided challenging exercises and excellent real-world examples and applications. Although the *EngageNY* lessons are designed for forty-five minute

classes, the teachers experienced firsthand that more time was needed for the lessons. Furthermore, the teachers reflected on their past experiences with the order of the Grade 7 *EngageNY* curriculum and decided that a change in the order of the modules should be made. Module 1, Ratios and Proportional Relationships, was too daunting of a module to begin with because it required much more background information than some of the other modules. In addition, after realizing how much the students struggled with skipping the Grade 6 content standards altogether, the teachers determined that a combined curriculum of sixth and seventh grade should be created. All of these discussion points led me to create the Accelerated Mathematics 6 Curriculum using the already existing *EngageNY* curricula for sixth and seventh grade levels.

Chapter 4: Accelerated Mathematics 6 Curriculum

The Accelerated Mathematics 6 curriculum is designed for mathematically gifted students. The curriculum combines both Grade 6 and Grade 7 curricula from *EngageNY* and consists of six modules. Each module contains both teacher materials and student materials. The teacher materials provide all of the resources necessary to implement the lessons in the classroom. All answers are provided as well as supplemental materials such as discussions, extensions, and closings. The student materials are guided notes that are designed for students to complete either individually or as a class. All opening exercises, examples, exercises, exit tickets, and problem sets are located in the student materials. Appendix B of this thesis provides both the teacher and student materials for this curriculum. In addition to the teacher and student materials, a module overview, a table of contents, and assessments are provided. The table of contents divides the modules into various topics. The topics include lessons in which the same CCSS are covered as well as similar lesson topics. Furthermore, each table of contents indicates a suggested time for the mid-module and end-of-module assessments to be given in that particular module. The mid-module assessment covers approximately half of the material in the module whereas the end-of-module assessment is cumulative.

4.1 Math 6 *EngageNY* Course Overview

The Grade 6 *EngageNY* curriculum contains six modules. Each module is to be taught in its entirety. The Grade 6 curriculum focuses on four main elements. These components include (1) ratios, rates, and unit rates, (2) rational numbers including negative numbers, (3) expressions and equations, and (4) statistics (*A Story of Ratios Curriculum: A Curriculum Overview for Grades 6-8*). Each of these components is emphasized in its own module. According to A Story

of Ratios Curriculum: A Curriculum Overview for Grades 6-8, the main points of focus in sixth grade are ratios, proportional reasoning, expressions, and equations.

4.2 Math 7 *EngageNY* Course Overview

The Grade 7 *EngageNY* curriculum also contains six different modules. The Grade 7 curriculum focuses on four main elements. These elements include (1) proportional relationships, (2) expressions and equations, (3) scale drawings and geometric figures, and (4) statistics and probability (*A Story of Ratios Curriculum: A Curriculum Overview for Grades 6-8*). The main areas of focus in the Grade 7 curriculum are ratios and proportional reasoning and operations involving rational numbers (*A Story of Ratios Curriculum: A Curriculum Overview for Grades 6-8*).

4.3 Similarities Between the Courses

There are several similarities between the sixth and seventh grade curricula. Figure 2 shows the modules that are in grades 6-8.

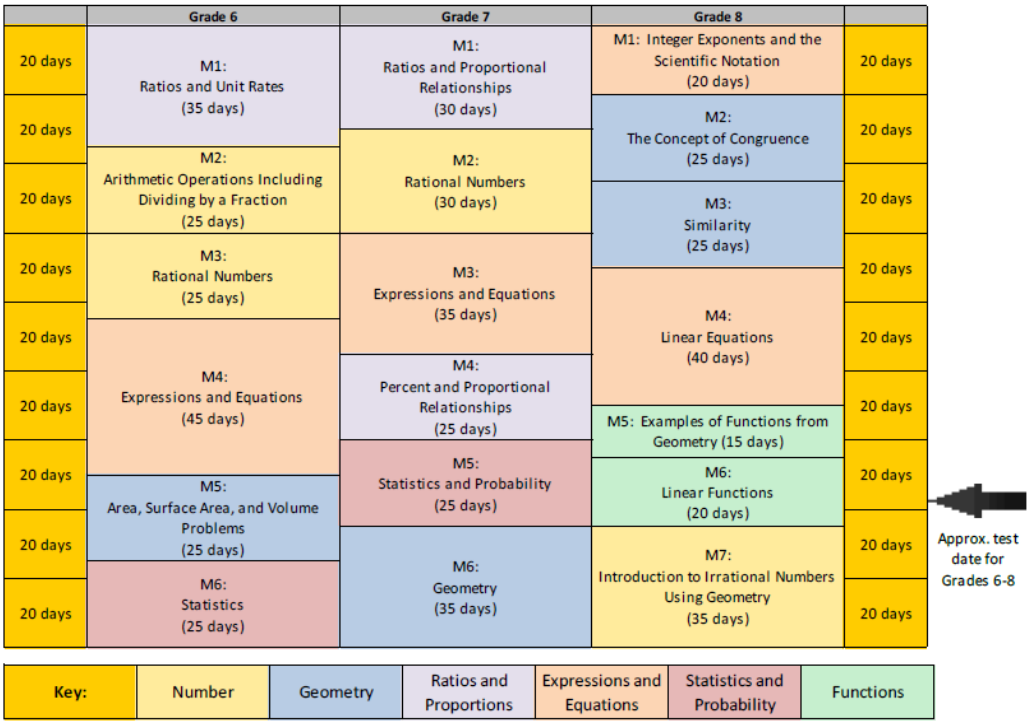


Figure 2: A Story of Ratios: A Curriculum Overview for Grades 6-8

Figure 2 shows the similarities between the Grade and Grade 7 module topics. Ratios and unit rates appear in Module 1 of the Grade 6 *EngageNY* curriculum and then again in Module 1 of the Grade 7 *EngageNY* curriculum. Proportional relationships appear in both Module 1 and Module 4 of the Grade 7 curriculum. Rational numbers is another area of similarity between the two curricula. Rational numbers are studied in Module 3 of the Grade 6 curriculum and then again in Module 2 of the Grade 7 curriculum. Additionally, expressions and equations are studied in both years along with geometry and statistics. With all of these crossovers, it is reasonable to believe that these two curricula would be the most cohesive at the middle school level to combine. The topics discussed in both grade levels are similar in that the seventh grade material builds off of the Grade 6 material. Thus, if the students do not have a solid foundation in the Grade 6 material, they will likely to struggle with the material presented in Grade 7.

4.4 Restructuring the Order of the Modules

After my experience teaching the Grade 7 curriculum to my sixth grade gifted and scholastic academy students in the 2013-2014 school year, I saw that the students struggled with the order of the modules. To restructure the order of the modules, I spoke with my colleagues who also taught the Grade 6 and/or the Grade 7 *EngageNY* curricula. In addition to the feedback from my coworkers, I reviewed the Grade 5 *EngageNY* curriculum. The Grade 5 curriculum focuses heavily on fraction and decimal fraction operations. Four out of six modules are devoted to fractions. Therefore, my coworkers and I agreed that arithmetic operations including dividing by a fraction should be moved to the first module in order to provide a smooth transition from fifth grade to sixth grade. In addition, this provided an opportunity for students to be exposed only to sixth grade CCSS and to ease them into both sixth and seventh grade CCSS later in the year. Thus, Module 2 from Grade 6 *EngageNY* was moved to the beginning of the Accelerated

Mathematics course. Table 2 shows the restructuring of the modules. The left column shows the modules based on the current Grade 6 and Grade 7 *EngageNY* curricula and the right column shows the new order for the modules in the Accelerated Mathematics 6 course.

Table 2: Restructuring of the Modules

***EngageNY* Grade 6 and Grade 7 Modules Used to Create the Accelerated Mathematics 6 Curriculum**	**Modules in the Accelerated Mathematics 6 Curriculum**
Grade 6 Module 2: Arithmetic Operations Including Dividing by a Fraction	Module 1: Arithmetic Operations Including Dividing by a Fraction
Grade 6 Module 3: Rational Numbers Grade 7 Module 2: Rational Numbers	Module 2: Rational Numbers
Grade 6 Module 4: Expressions and Equations Grade 7 Module 2: Rational Numbers Grade 7 Module 3: Expressions and Equations	Module 3: Expressions and Equations
Grade 6 Module 1: Ratios and Unit Rates Grade 7 Module 1: Ratios and Proportional Relationships Grade 7 Module 4: Percent and Proportional Relationships	Module 4: Ratios, Percent, and Proportional Relationships
Grade 6 Module 5: Area, Surface Area, and Volume Problems Grade 7 Module 6: Geometry	Module 5: Geometry
Grade 6 Module 6: Statistics Grade 7 Module 5: Statistics and Probability	Module 6: Statistics and Probability

4.5 Accelerated Mathematics 6 Curriculum Overview

The adapted Accelerated Mathematics 6 curriculum (see Appendix B) is designed for academically gifted students in mathematics. The curriculum combines the Grade 6 and Grade 7 *EngageNY* curricula. Therefore, the key standards from both grades are a focus throughout the curriculum. At the end of the school year, students should have mastered the two grade level CCSS and are expected to be prepared to move on to Grade 8 mathematics with ease.

The creation process of the Accelerated Mathematics 6 curriculum involved several steps. The first step was to examine the modules and determine similarities between the two modules.

Then, I looked at the topics covered in each of the modules and the sixth and seventh grade standards to determine if there were any overlaps or similarities. Next, I determined which modules should be combined. In order to complete this process, I examined the five domains of the CCSS for each grade level. These domains include Ratios and Proportional Relationships, The Number System, Expressions and Equations, Geometry, and Statistics and Probability (Mathematics Standards | Common Core State Standards Initiative). Once the modules were grouped, the modules were ordered based on feedback from fellow coworkers along with personal experiences of teaching the seventh grade *EngageNY* curriculum. The Accelerated Mathematics 6 curriculum is designed to begin with only sixth grade standards that are taught in Module 1 entitled Arithmetic Operations Including Dividing by a Fraction. After Module 1, seventh grade standards are intermixed with the sixth grade standards and are taught simultaneously.

The design of the modules was the final step in the creation process. The lessons in the *EngageNY* modules were examined, and mid-module assessments and end-of-module assessments based on the content of the modules were created. The Accelerated Mathematics 6 curriculum includes six modules. Each module contains a module overview, a table of contents, student and teacher materials, a mid-module assessment and rubric, and an end-of-module assessment and rubric. The module overview provides a detailed explanation of the material that is to be covered in a particular module as well as the CCSS that are to be taught. The student materials provide an outline of each lesson in a module. The student materials should be provided each day and should serve as notes for the students. The teacher materials provide teachers with an outline for the lessons and include all of the answers to the examples and

exercises as well as suggestions on how to proceed with each lesson. Both the student and teacher materials include the following throughout each module:

- Examples
- Exercises (both independent and small group)
- Exit Tickets
- Closing
- Problem Sets

Opening exercises, extensions, activities, and lesson summaries can be found throughout the modules; however, they are not included in every lesson.

The purpose of the Accelerated Mathematics 6 curriculum is to prepare students for eighth grade math. Mastery of both sixth and seventh grade standards is expected. The success of the Accelerated Mathematics 6 curriculum is designed to not be dependent on the use of the other *EngageNY* curricula throughout a child's school career. Therefore, the Accelerated Mathematics 6 curriculum could be used independently of or in parallel to the other *EngageNY* curricula. However, in order to use the curriculum independently of the other *EngageNY* curricula, teachers should review the following prerequisites. Teachers should ensure that students participating in the use of the Accelerated Mathematics 6 curriculum are mathematically gifted and are capable of successfully completing an accelerated course. Furthermore, teachers should ensure that students have mastered the K-5 CCSS prior to using the Accelerated Mathematics 6 curriculum.

4.6 Accelerated Mathematics 6 Module Details

The Accelerated Mathematics 6 curriculum has been adapted in several ways. First, the order in which the modules are taught has been changed. Table 1: Restructuring of the Modules

compares the order of the *EngageNY* Grade 6 and Grade 7 modules to the order of the modules in Accelerated Mathematics 6. Next, some exercises and examples have been strategically removed from the Accelerated Mathematics 6 curriculum. In addition, opening exercises, lesson notes, vocabulary, and extensions have been inserted throughout.

Module 1 of the Accelerated Mathematics 6 course is a variation of Module 2 from the Grade 6 *EngageNY* curriculum. Module 1 has been condensed from 19 lessons to 15 lessons. In order to condense the lessons, some examples and exercises were intentionally removed. In addition to condensing the lessons, new ideas were added. Vocabulary reviews were added as well as lesson notes. In addition, opening exercises at the beginning of the lessons were created. Exercise and discussion extensions were also added throughout the module. Furthermore, various problems from the mid-module and end-of-module assessments were changed in order to remove gaps of knowledge found within the problems.

Module 2 combines Module 3 from Grade 6 and the Module 2 from Grade 7 of the *EngageNY* curricula. Both of these modules are titled Rational Numbers. Module 3 from the Grade 6 curriculum includes 19 lessons, and Module 2 from the Grade 7 curriculum includes 23 lessons. Several lessons were condensed throughout Module 2 of the Accelerated Mathematics 6 course. For instance, Lesson 2 of the Accelerated Mathematics 6 curriculum combines Lessons 2 and 3 from Module 3 of the Grade 6 *EngageNY* curriculum. Of the 25 lessons in the Accelerated Mathematics 6 curriculum, eight of these lessons compacted two lessons from *EngageNY*. Additional resources are also inserted in Module 2. Opening exercises, project rubrics, discussions, scaffolding ideas, vocabulary, and extensions are all added throughout Module 2.

Module 3 contains Module 4 from the Grade 6 *EngageNY* curriculum in its entirety and Topic C from Grade 7 Module 2 and Topics A and B From Grade 7 Module 3. Only those lessons pertaining to Expressions and Equations are included. The majority of Grade 7 Module 2 (16 of 23 lessons) includes lessons related to rational numbers, which is covered in Module 2 of the Accelerated Mathematics 6 course; therefore, only a few lessons from this module are included in Module 3 of the Accelerated Mathematics 6 course. Furthermore, Lesson 30 from the Grade 6 Module 4 *EngageNY* curriculum is omitted from this module. This lesson emphasizes solving one-step equations involving real-world examples; however, the examples included in this lesson involve writing and solving equations using angle relationships. At this point in the Accelerated Mathematics 6 course, students are not familiar with angle relationships. Thus, this lesson was intentionally left out, and the topic is covered in a later module. Fifteen of the thirty-two lessons in Module 3 compact at least two lessons. After the implementation of the course in the 2014-2015 school year, a few changes were made to Module 3. Originally, exponents and order of operations were combined into one lesson. Although students grasped exponents quickly, order of operations proved troublesome. Therefore, I decided exponents and order of operations should be separated into two different lessons. True and false number sentences were originally divided into two different lessons, one of which focused on true and false number sentences and another on finding solutions to make equations true. These topics are closely related, and students moved quickly through the concepts. Thus, these topics were later combined to make one lesson. Opening exercises, exercise extensions, the use of anchor charts, and lesson notes are added throughout Module 3.

Module 4 combines three modules from the Grade 6 and Grade 7*EngageNY* curricula. Grade 6 Module 1 introduces ratios. Grade 7 Module 1 relates ratios and unit rates, and Grade 7

Module 4 discusses percent and proportional relationships. Module 4 consists of 35 lessons, 19 of which combine two or more lessons. In addition to reordering the lessons, opening exercises, extensions, and discussions are supplemented throughout the module.

Module 5 combines Grade 6 Module 3, Grade 7 Module 3, and Grade 7 Module 6. This module contains 23 lessons, 18 of which combine at least two lessons from *EngageNY*. Module 5 includes five different topics. The order in which the lessons are taught was refigured. Constructions of polygons is integrated within lessons instead of standing completely alone. Students are familiar with area of polygons and use their knowledge of area of two-dimensional figures to find surface area. Therefore, surface area is taught before volume is introduced. Three-dimensional figures are introduced using nets, which students can use to find the surface area. Thus, it made sense for the sequence of surface area and volume to be altered. In addition to the sequence change and the compacting of lessons, discussions and extensions are included throughout the module.

Module 6 combines two Grade 6 and Grade 7 *EngageNY* modules. These modules include Grade 6 Module 1 and Grade 7 Module 5. Module 6 includes 26 lessons, 16 of which are made up of two lessons. Sixth grade CCSS are discussed in the first four topics and are assessed on the mid-module assessment. Then, seventh grade CCSS are introduced in the last three topics. Finally, the last three topics are evaluated on the end-of-module assessment. Opening exercises, extensions, and discussions are included throughout the module.

Chapter 5: Evidence

Each year, the East Baton Rouge Parish School System provides schools a pre- and post-test for each subject to be given in August and in May. These assessments cover the entire year's curriculum and assess the students' knowledge of the standards taught throughout the year (East Baton Rouge Parish School System). The pre- and post-tests allow both students and teachers to see the amount of student growth over the entire school year. The tests are aligned to the CCSS and are administered by the entire school district. The achievement levels for the district benchmark assessments differ from those of the iLEAP state assessments; however, students who perform at or above the basic level on the East Baton Rouge Parish School System benchmark tests are still considered to be proficient. Table 3 (EBR Schools Grade Level for Benchmark Assessments) shows the achievement levels established by the East Baton Rouge Parish School System.

Table 3: East Baton Rouge Parish Benchmark Achievement Levels

Achievement Level	Grade Value Based on a 100-Point Test
Advanced	89% - 100%
Mastery	78% - 88%
Basic	55% - 77%
Approaching Basic	40% - 54%
Unsatisfactory	0% - 39%

5.1 Math 6 Test Data

All of the gifted and scholastic academy students who participated in the Accelerated Mathematics 6 course took the East Baton Rouge Math 6 post-test. Of these students, 100% scored at the proficient level. The average class score on the test was an 83%, and the average school score for all sixth grade students taking the exam was a 61.86%. Therefore, the

accelerated sixth grade gifted and scholastic academy students outperformed the other sixth grade students at the school.

With the transition to CCSS comes a new assessment called the Partnership for Assessment of Readiness for College and Careers (PARCC). On the PARCC Math 6 Practice test, 86.6% of the accelerated sixth grade gifted and scholastic academy students performed at the proficient level. The two lowest strands were the statistics and probability strand and the area, surface area, and volume strand. These two strands brought down the overall class average. Although 86.6% of the students performed at the proficient level, this is not an accurate portrayal of their success in the Grade 6 CCSS because at the time of the administration of the PARCC practice test, those lowest two strands had not be taught in the Accelerated Mathematics 6 course.

5.2 Math 7 Pre- and Post-Test Data

The East Baton Rouge Math 7 pre- and post-tests were also administered to the accelerated sixth grade gifted and scholastic academy students who took the Accelerated Mathematics 6 course. On the math 7 pre-test, 0% of the students performed at the proficient level. The class average was a 28.5%. On the Math 7 post-test, 73.3% of the students scored at the proficient level. Once again, statistics and probability was the lowest performing strand because Module 5 was not covered in its entirety due to time constraints. The class average on the Math 7 Post-test exam was a 65.4% whereas the seventh grade school average was a 52.98%. Thus, the sixth graders taking Accelerated Mathematics 6 were able to outperform those seventh grade students taking the Math 7 course by 12.42%. Overall, the gifted and scholastic academy students showed great growth in their knowledge of the Grade 7 content.

5.3 Projected Success in Future Mathematics Courses

Based on the Math 6 post-test data and the Math 7 post-test data, students should be well prepared for Math 8 following the conclusion of the Accelerated Mathematics 6 course. On the expressions and equations strand, 93.3% of the students were proficient on the Math 6 standards and 73.3% of the students were proficient on the Math 7 standards. On the number system strand, 66.7% of the students were proficient on the Math 6 standards and 73.3% of the students were proficient on the Math 7 standards. On the ratios and proportional relationships strand, 93.3% of the students were proficient on the Math 6 standards and 80% were proficient on the Math 7 standards and 80% of the students were proficient on the geometry Math 6 standards. Although the majority of the students were proficient on these specific standards, the students' projected success in future mathematics courses cannot be known until these sixth grade gifted and scholastic academy students participate in Math 8 the following year.

Chapter 6: Conclusions

6.1 Implications

As stated on the East Baton Rouge Exceptional Student Services webpage, "The East Baton Rouge School System Exception Student Services offers a wide variety of programs that are destined to provide quality education, which will allow students to function at their highest potential in a complex and changing society by utilizing accommodative learning opportunities." With this goal in mind, the Accelerated Mathematics 6 course provides the gifted and scholastic academy students an opportunity to participate in a self-contained gifted classroom in which an accelerated curriculum is administered. The accelerated curriculum provides these students an opportunity to meet their mathematical potential and ultimately gain a high school credit prior to leaving middle school.

A major difficulty in implementing the Accelerated Mathematics 6 was the number of gaps that still existed in the students' knowledge based on the transition from the GLEs to the CCSS. As stated in the article "Redesigning and Expanding School Time to Support Common Core Implementation," "Sue Gendron, senior fellow at the International Center for Leadership in Education, puts the matter concretely: 'The standards are, in many cases, one to two years higher than what is currently expected at grade levels'" (Farbman, D.A., Goldberg, D.J., & Miller, T.D., 2014, p. 22). Thus, remediation of some fifth grade standards will need to take place in addition to teaching the Grade 6 and Grade 7 standards found in the Accelerated Mathematics 6 curriculum.

Time is another issue in implementing this accelerated curriculum. With the full implementation of the CCSS and transitioning to the PARCC assessment, several weeks were dedicated to testing the students. Not only did the school have to administer these national tests,

the school also had to continue to administer the district mandated tests. Thus, more time than in previous years was devoted to testing. Table 4 shows the East Baton Rouge Parish Assessment timeline. The timeline does not include any teacher made tests or field trips, which also deducts time from classroom instruction.

Table 4: EBR Assessment Timeline

Time of Year	Assessment Given
August 2014	Math 7 Pre-Test
October 2014	First Nine Week Assessment
December 2014	Midterm Exam
March 2015	PARCC Performance-Based Assessment (PBA)[2]
April 2015	PARCC End-of-Year (EOY) [3]Practice Test
April 2015	PARCC EOY Assessment
May 2015	Math 6 and Math 7 Post-Test

In the future, the amount of time during the school year spent on testing should be reduced because a complete testing plan will be developed. Therefore, there will be enough time to cover all modules and the percent of students performing at the proficient level should increase on both the geometry and the statistics and probability strands, which are taught in the final two modules of the curriculum.

6.2 Recommendations

One recommendation for implementing the Accelerated Mathematics 6 curriculum is that teachers administer this curriculum only to those students who are mathematically gifted. This curriculum is not designed to be implemented by teachers whose students perform at the traditional level. In addition, it is recommended that teachers create a pacing calendar for the

[2] The PARCC PBA are given after approximately 75% of the material has been covered (3-8 | PARCC, n.d.)
[3] The PARCC EOY are given after approximately 90% of the material has been covered (3-8 | PARCC, n.d.)

school year in order to reach all six modules prior to the end of the year and prior to the EOY Assessment of the PARCC assessment. Although a pacing guide is provided within the Accelerated Mathematics 6 curriculum (see Appendix B), teachers must take into consideration their own students' abilities. Teachers must be aware of when the PARCC assessment be given and modify their pacing to ensure that all topics are covered prior to the administration of both the PBA and the EOY. Finally, it is recommended that teachers use their own judgment to decide whether some lessons may be further combined.

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Appendix A: IRB Approval

ACTION ON EXEMPTION APPROVAL REQUEST

Institutional Review Board
Dr. Dennis Landin, Chair
130 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu | lsu.edu/irb

TO: Emily Moran
MNS

FROM: Dennis Landin
Chair, Institutional Review Board

DATE: September 3, 2014

RE: **IRB#** E8902

TITLE: Accelerated Mathematics 7 Curriculum

New Protocol/Modification/Continuation: New Protocol

Review Date: 9/2/2014

Approved X **Disapproved**_____

Approval Date: 9/2/2014 **Approval Expiration Date:** 9/1/2017

Exemption Category/Paragraph: 1a

Signed Consent Waived?: No

Re-review frequency: (three years unless otherwise stated)

LSU Proposal Number (if applicable): _____

Protocol Matches Scope of Work in Grant proposal: (if applicable) _____

By: Dennis Landin, Chairman _____

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –
Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. SPECIAL NOTE:

**All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb*

ACTION ON EXEMPTION APPROVAL REQUEST

Institutional Review Board
Dr. Dennis Landin, Chair
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TO: Emily Moran
MNS

FROM: Dennis Landin
Chair, Institutional Review Board

DATE: October 21, 2014

RE: **IRB#** E8902

TITLE: Accelerated Mathematics 7 Curriculum

New Protocol/Modification/Continuation: Modification

Brief Modification Description: Adding sixth grade great scholar students at Woodlawn Middle School to subject pool.

Review date: 10/20/2014

Approved ___X___ **Disapproved** _____

Approval Date: 10/20/2014 **Approval Expiration Date:** 9/1/2017

Re-review frequency: (three years unless otherwise stated)

LSU Proposal Number (if applicable): _____

Protocol Matches Scope of Work in Grant proposal: (if applicable) _____

By: Dennis Landin, Chairman _____

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –
Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
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4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. SPECIAL NOTE:

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Vita

Emily Jane Moran was born in Harrisonburg, Virginia. She graduated with a Bachelor's of Science degree in mathematics with a concentration in secondary education from Louisiana State University in 2011. Since graduation, Emily has been teaching at Woodlawn Middle School located in Baton Rouge, Louisiana. She teaches middle school gifted students who participate in an accelerated path in mathematics, which allows her to teach both middle school and high school credit courses. She currently teaches an Accelerated Mathematics 6 course, Math 8, Algebra I, and Geometry at Woodlawn Middle School. She resides in Baton Rouge, Louisiana.