



MAGNOLIA PUBLIC SCHOOLS

Board Of Directors

Board Agenda Item #	II A
Date:	June 2, 2016
To:	MPS Academic Committee
From:	Caprice Young, Ed.D., CEO & Superintendent
Staff Lead:	David Yilmaz, Director of Accountability
RE:	MPS Math Placement Policy

Proposed Board Recommendation

I move that the Academic Committee recommends approval of the “MPS Math Placement Policy.”

Background

Senate Bill 359: CA Mathematics Placement Act of 2015 bill requires governing boards that serve students entering grade 9 and that have not adopted a fair, objective, and transparent math placement policy as of January 1, 2016, to, before the beginning of the 2016-17 school year, develop and adopt, in a regularly scheduled board meeting, a fair, objective, and transparent mathematics placement policy for students entering grade 9 with specified elements.

Attached policy describes math placement and acceleration that we propose for MPS starting in the 2016-17 school year. The policy addresses all specified elements in the senate bill which are:

1. Use multiple objective academic measures of student performance for placement
2. Include at least one placement checkpoint within the first month of the school year to ensure accurate placement
3. Examine aggregate student placement data annually to ensure students who are qualified to progress in math based on performance are not held back on the basis of their race, ethnicity, gender, or socio-economic background
4. Offer clear and timely recourse for each student and his or her parent or legal guardian who questions the student’s placement
5. For non-unified school districts, addresses the consistency of math placement policies between elementary and HS districts



MAGNOLIA PUBLIC SCHOOLS

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Budget Implications

Schools have already budgeted math teacher, curriculum, PD needs in their budgets.

Name of Staff Originator:

David Yilmaz, Director of Accountability

Attachments

MPS Math Placement Policy

MAGNOLIA PUBLIC SCHOOLS (MPS) MATHEMATICS PLACEMENT POLICY

A. Mathematics Placement Policy for Students Entering Grade 9

This policy of the Magnolia Educational & Research Foundation dba Magnolia Public Schools (the “Charter School”) Board of Directors (“Board”) has been adopted to establish a fair, objective, and transparent protocol for placement in mathematics courses for students entering 9th grade, in order to ensure the success of every student and to meet the Legislative intent of the California Mathematics Placement Act of 2015.

1. In determining the mathematics course placement for entering 9th grade students, the Charter School systematically takes multiple objective academic measures of student performance into consideration, including:
 - a. Statewide mathematics assessments, including interim and summative assessments through the California Assessment of Student Performance and Progress (“CAASPP”);
 - b. Placement tests that are aligned to state-adopted content standards in mathematics;
 - c. Recommendation, if available, of each student’s 8th grade mathematics teacher based on classroom assignment and grades;
 - d. Recommendation, if any, of each student’s 9th grade mathematics teacher based on classroom assignments and grades provided at the beginning of the school year;
 - e. Final grade in mathematics on the student’s official, end of the year 8th grade report card;
 - f. Results from all placement checkpoints, including at least one (1) placement checkpoint within the first month of the school year as described in Section 2, below.
2. The Charter School will provide at least one (1) placement checkpoint within the first month of the school year to ensure accurate placement and permit reevaluation of individual student progress. All mathematics teachers responsible for teaching 9th grade students will assess the mathematics placements for each 9th grade student assigned to the teacher’s mathematics class. The teacher’s assessment will take into consideration factors which may include, but are not limited to, the student’s MAP test scores, classroom assignments, quizzes, tests, exams, and grades, classroom participation, and any comments provided by the student, the student’s parent/legal guardian, and/or the student’s other teachers regarding the student’s mathematics placement. Based on the assessment, the teacher will then recommend that the student remain in the current mathematics placement or be transferred to another mathematics placement, in which case the teacher shall specify the mathematics course or level recommended for the student.
3. The Charter School Principal, or his or her designee, shall examine aggregate student placement data annually to ensure that students who are qualified to progress in mathematics courses based on their performance on objective academic measures included in Section 1 of this policy are not held back in a disproportionate manner on the basis of their race, ethnicity, gender, or socioeconomic background. The Charter School shall annually report the aggregate results of this examination to the Charter School Board.
4. The Charter School offers clear and timely recourse for each student and his or her parent or legal guardian who questions the student’s placement, as follows:

- a. A parent/legal guardian of any 9th grade student may submit a written request to the Charter School Principal, or his or her designee, that:
 - i. Requests information regarding how the student's mathematics placement was determined. Within five (5) days of receipt, the Charter School Principal or designee shall respond in writing to the parent/legal guardian's request by providing the information, including the objective academic measures that the Charter School relied upon in determining the student's mathematics placement.
 - ii. Requests that the student retake the placement test, in which case the Principal or designee will attempt to facilitate the retest within two (2) weeks.
 - iii. Requests that the student retake the 8th grade end of course final mathematics assessment, in which case the Principal or designee will attempt to facilitate the retest within two (2) weeks.
 - iv. Requests reconsideration of the student's mathematics placement based on objective academic measures. Within five (5) school days of receipt, the Charter School Principal or designee shall respond in writing to the parent/legal guardian's request. The Principal or designee and the student's mathematics teacher must assess the objective academic measures provided by the parent in conjunction with the objective academic measures identified in Section 1 and 2 of this policy. Based on this assessment, the Principal or designee must determine whether the most appropriate mathematics placement for the student is the student's current placement or another placement, in which case the Principal shall specify the mathematics course or level recommended for the student. The Principal's or designee's response must provide the determination as well as the objective academic measures that the Principal or designee relied upon in making that determination.
 - b. Notwithstanding the foregoing, if the Principal or designee requires additional time to respond to a parent/legal guardian's request, the Principal or designee will provide a written response indicating that additional time is needed. In no event shall the Principal's or designee's response time exceed one (1) month.
 - c. If, after reconsideration of the student's mathematics placement by the Principal or designee, the parent/legal guardian is dissatisfied with the student's mathematics placement, the parent/legal guardian may choose to sign a voluntary waiver requesting that the student be placed in another mathematics course against the professional recommendation of the Principal or designee, acknowledging and accepting responsibility for this placement.
5. The Charter School shall ensure that this mathematics placement policy is posted on its website.
 6. This policy is adopted pursuant to the Mathematics Placement Act of 2015, enacted as Education Code Section 51224.7.

B. Mathematics Curriculum and Pathways

The math curriculum at the Charter School is based on the California Common Core State Standards: Mathematics (CA CCSSM) and reflect the importance of **focus**, **coherence**, and **rigor** as the guiding principles for mathematics instruction and learning. These standards will be fully implemented and assessed as a commitment to providing a world-class education for all students that supports college and career readiness and the knowledge and skills necessary to fully participate in the twenty-first-century global economy.

The standards call for learning mathematical content in the context of real-world situations, using mathematics to solve problems, and developing “habits of mind” that foster mastery of mathematics content as well as mathematical understanding. The standards for kindergarten through grade 8 prepare students for higher mathematics. The standards for higher mathematics reflect the knowledge and skills that are necessary to prepare students for college and careers and productive citizenship.

The math instruction at the Charter School will focus deeply on the concepts that are emphasized in the standards so that students can gain strong foundational conceptual understanding, a high degree of procedural skill and fluency, and the ability to apply the mathematics they know to solve problems inside and outside the mathematics classroom. Coherence will be provided through mathematical connections. Some of the connections in the standards knit topics together at a single grade level. Most connections are vertical, as the standards support a progression of increasing knowledge, skill, and sophistication across the grades. Teachers will approach conceptual understanding, procedural skill and fluency, and application with equal intensity, providing instruction with rigor and relevance. In short, the math instruction at the Charter School will meet the challenges of the twenty-first century through innovation.

Requirements for graduation:

In grades 6 through 8, students are required to take core mathematics courses each year. In grades 9 through 12, the Charter School math course requirements are threefold:

- 1) Credit requirements:** MPS requires at least 30 semester credits of math for a standard diploma and 40 semester credits of math for an advanced or honors diploma. Some of these credits can be earned in middle school.
- 2) Year requirements:** MPS requires students to be enrolled in a math course for at least two years in grades nine through twelve for a standard diploma (*state requirement*) and at least three years in grades nine through twelve for an advanced or honors diploma. For example; a student may take Mathematics-I or Algebra I in seventh grade, Mathematics II or Geometry in eighth grade, and Mathematics III or Algebra II in ninth grade. The student still needs to take one more year of math for a standard diploma and two more years of math for an advanced or honors diploma.
- 3) Course requirements:** Students need to complete three years of math courses that include the topics covered in elementary and advanced algebra and two-and-three dimensional geometry before graduation. Integrated math courses fulfill this requirement.

Pathways:

Charter School will strive to provide the following pathways depending on student levels, needs/demands and availability of teachers and resources.

Pathway	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
Regular Pathway	Math 6	Math 7	Math 8	Integrated Math I <i>or</i> Algebra I	Integrated Math II <i>or</i> Geometry	Integrated Math III <i>or</i> Algebra II	Electives *
Accelerated Pathway 1	Math 6	<i>Accelerated Math 7/8</i> **	<i>Integrated Math I</i> ** <i>or</i> <i>Algebra I</i>	Integrated Math II <i>or</i> Geometry	Integrated Math III <i>or</i> Algebra II	Electives *	Electives *
Accelerated Pathway 2	<i>Accelerated Math 6/7</i> ***	<i>Integrated Math I</i> *** <i>or</i> <i>Algebra I</i>	Integrated Math II <i>or</i> Geometry	Integrated Math III <i>or</i> Algebra II	Electives *	Electives *	Electives *
Further Acceleration	In some cases, entering sixth graders may be capable of beginning high school Integrated Math I (or Algebra I) and MPS is eager to accommodate these gifted students. Please see section titled “Middle School Math Placement” below for details.						
<p>* Electives include Integrated Math IV/Precalculus, AP Calculus AB, AP Calculus BC, AP Statistics, and other math courses depending on student levels, needs/demands and availability of teachers and resources.</p> <p>** In Accelerated Pathway 1, grades 7, 8, and 9 are compacted into grades 7 and 8 (a 3:2 compaction).</p> <p>*** In Accelerated Pathway 2, grades 6, 7, 8, and 9 are compacted into grades 6 and 7 (a 4:2 compaction). Math 8 is bridged between grades 6 and 7 with the option of a summer math bridge course.</p> <p>Integrated vs. Traditional Pathway</p> <p>Depending on students’ math backgrounds and surrounding schools’ pathways, Charter School may elect to follow the traditional mathematics pathway over the integrated mathematics pathway where Algebra I, Geometry, Algebra II, and Precalculus courses replace Integrated Math I, II, III, and IV courses.</p>							

Middle school courses reflect California Common Core State Standards: Mathematics (CA CCSSM). Students on the regular pathway will be enrolled in common core Math 6, Math 7, and Math 8 courses. These courses follow a focus and coherent progression that builds from one year to the next. The accelerated pathway is for students who show mastery of grade-level standards. According to the Common Core State Standards Initiative, “Decision to accelerate students into higher mathematics before ninth grade must require solid evidence of mastery of prerequisite CCSSM. Compacted [accelerated] courses should include the same CCSS as the non-compacted courses.” (Common Core State Standards Initiative, Appendix A, 2010).

Students will have opportunities to accelerate in middle and high school. In the recommended accelerated pathway, i.e., Accelerated Pathway 1, three years of math are combined into two math courses. Standards are not cut or skipped but compacted, requiring students to learn at a faster pace. It is not recommended to compact the standards before grade seven to ensure that students are developmentally ready for accelerated content. Learning math properly requires thorough understanding at each step so that complex material down the road can be tackled successfully. Notwithstanding the above, the Charter School will design a special pathway, i.e., Accelerated Pathway 2, for those few highest achieving sixth graders who are developmentally ready for further acceleration. In Accelerated Pathway 2, four years of content is compacted into two years allowing students to complete Integrated Math I (Algebra I) by the end of seventh grade.

Students entering grade 9 who completed Integrated Math I (Algebra I) in grade 8 successfully shall be placed in Integrated Math II (Geometry) in grade 9, and those who completed Integrated Math II (Geometry) in grade 8 shall be placed in Integrated Math III (Algebra II) in grade 9. Integrated Math I (Algebra I) and Integrated Math II (Geometry) courses taken in middle school will each be awarded ten (10) high school credits in mathematics.

The Charter School will offer math electives to students who have completed Integrated Math III (Algebra II). These include, but are not limited to, Integrated Math IV (Precalculus), AP Calculus AB, AP Calculus BC, AP Statistics, and other math courses depending on student levels, needs/demands, and availability of teachers and resources.

Middle School Math Placement:

The following are guidelines regarding student placement in math courses. Charter School will make a careful consideration of multiple data points to make a decision in the best interests of the students.

Students Entering Grade 6:

- A) Accelerated Math 6/7: Grade 5 students transitioning to grade 6 and meeting specific requirements and criteria for acceleration may be placed in Accelerated Math 6/7. The criteria for placing students into the Accelerated Math 6/7 course include:

- Score of 4 out of 4 (or a minimum grade of “A-” or 90%) in math on final report card for grade 5
- Overall score of “Standard Exceeded” in math on the summative assessment through the California Assessment of Student Performance and Progress (“CAASPP”) in grade 5
- Minimum Spring MAP test score that corresponds to a performance level of 4 (“Standard Exceeded”) in grade 5 (when applicable)
- Mandatory parent education meeting attendance to gain understanding of the expectations of the accelerated pathways and signed acceleration agreement (see attachment)

Once all of the above criteria are met, a student will be eligible to take the 6th grade placement examination which includes SBAC-like questions and performance tasks.

- Student must earn a score of “Proficient” in all parts of the placement examination to be placed in Accelerated Math 6/7.

- B) In some cases, entering sixth graders may be capable of beginning high school Integrated Math I (or Algebra I) and MPS is eager to accommodate these gifted students. Therefore, upon satisfaction of the criteria listed

under A) and successful passage of a Math I (Algebra I) placement test, students will be placed in a high school Math I (Algebra I) course as a cohort, by integration into an out of grade level assignment, or through mentored independent study. Likewise, some students may have the capacity to move at a faster pace through the material requiring consolidation of High School Algebra I with Geometry or Algebra II. MPS will in all cases accommodate the needs of these gifted students through classes or mentored independent study.

- C) All other entering sixth graders shall be placed in common core Math 6.

Students Entering Grade 7:

- A) Integrated Math I: Grade 6 students transitioning to grade 7 and meeting specific requirements and criteria for acceleration may be placed in Integrated Math I. The criteria for placing students into the Integrated Math I course include:
- Score of 3 out of 4 (or a minimum grade of “B-” or 80%) in Accelerated Math 6/7 course on final report card for grade 6
 - Overall score of “Standard Exceeded” in math on the summative assessment through the California Assessment of Student Performance and Progress (“CAASPP”) in grade 6
 - Minimum Spring MAP test score that corresponds to a performance level of 4 (“Standard Exceeded”) in grade 6 (when applicable)
 - Mandatory parent education meeting attendance to gain understanding of the expectations of the accelerated pathways and signed acceleration agreement (see attachment)
- B) Integrated Math II or above: Those gifted entering seventh graders who successfully completed a high school math course in grade 6 shall be placed in an appropriate next level math course. Successful completion includes the criteria listed under A) as applicable to the course taken in grade 6.
- C) Accelerated Math 7/8: Grade 6 students transitioning to grade 7 and meeting specific requirements and criteria for acceleration may be placed in Accelerated Math 7/8. The criteria for placing students into the Accelerated Math 7/8 course include:
- Score of 4 out of 4 (or a minimum grade of “A-” or 90%) in common core Math 6 course on final report card for grade 6
 - Overall score of “Standard Exceeded” in math on the summative assessment through the California Assessment of Student Performance and Progress (“CAASPP”) in grade 6
 - Minimum Spring MAP test score that corresponds to a performance level of 4 (“Standard Exceeded”) in grade 6 (when applicable)
 - Mandatory parent education meeting attendance to gain understanding of the expectations of the accelerated pathways and signed acceleration agreement (see attachment)
- D) All other entering seventh graders shall be placed in common core Math 7.

Students Entering Grade 8:

- A) Integrated Math II: Grade 7 students transitioning to grade 8 and meeting specific requirements and criteria for acceleration may be placed in Integrated Math II. The criteria for placing students into the Integrated Math II course include:
- A minimum grade of “C” or 70% in Integrated Math I course on final report card for grade 7
 - Overall score of “Standard Exceeded” in math on the summative assessment through the California Assessment of Student Performance and Progress (“CAASPP”) in grade 7
 - Minimum Spring MAP test score that corresponds to a performance level of 4 (“Standard Exceeded”) in grade 7 (when applicable)
 - Mandatory parent education meeting attendance to gain understanding of the expectations of the accelerated pathways and signed acceleration agreement (see attachment)
- B) Integrated Math III or above: Those gifted entering eighth graders who successfully completed Integrated Math II or above in grade 7 shall be placed in an appropriate next level math course. Successful completion includes the criteria listed under A) as applicable to the course taken in grade 7.
- C) Integrated Math I: Grade 7 students transitioning to grade 8 and meeting specific requirements and criteria for acceleration may be placed in Integrated Math I. The criteria for placing students into the Integrated Math I course include:
- A minimum grade of “B-” or 80% in Accelerated Math 7/8 course on final report card for grade 7
 - Overall score of “Standard Exceeded” in math on the summative assessment through the California Assessment of Student Performance and Progress (“CAASPP”) in grade 7
 - Minimum Spring MAP test score that corresponds to a performance level of 4 (“Standard Exceeded”) in grade 7 (when applicable)
 - Mandatory parent education meeting attendance to gain understanding of the expectations of the accelerated pathways and signed acceleration agreement (see attachment)
- D) All other entering eighth graders shall be placed in common core Math 8.

Continuing the Accelerated Pathways:

The Charter School will provide at least one (1) placement checkpoint within the first month of the school year to ensure accurate placement and permit reevaluation of individual student progress. All mathematics teachers will assess the mathematics placements for each student assigned to the teacher’s mathematics class. The teacher’s assessment will take into consideration factors which may include, but are not limited to, the student’s MAP test scores, classroom assignments, quizzes, tests, exams, and grades, classroom participation, and any comments provided by the student, the student’s parent/legal guardian, and/or the student’s other teachers regarding the student’s mathematics placement. Based on the assessment, the teacher will then recommend that the student remain in the current mathematics placement or be transferred to another mathematics placement, in which case the teacher shall specify the mathematics course or level recommended for the student.

As explained above, the Charter School will provide at least one (1) placement checkpoint within the first month of the school year and will continue to assess the mathematics placements for each student. The Charter School will make a careful consideration of multiple data points to make a decision in the best interests of the students. The following are minimum criteria that must be met by a student to remain in the current mathematics placement:

- Minimum grade of “B-” or 80% on current class grade and on each progress/report card
- Minimum Fall/Winter MAP test score that corresponds to a performance level of 3 (“Standard Met”) for grade level (when applicable)
- Teacher recommendation
- Administrator recommendation

Linking Data Table: Smarter Balanced & MAP¹:

Northwest Evaluation Association™ (NWEA™) completed a study to connect RIT scores from Measures of Academic Progress® (MAP®) interim assessments with the scale of Smarter Balanced Assessment Consortia (Smarter Balanced) summative assessments in math and English language arts (ELA).

This linking data table conveys this valuable information so you can see where your students are now, develop growth goals for the coming year, and create instructional strategies to meet them. Data from your fall, winter, and spring MAP administrations will show you how your students are growing toward those goals and guide instructional decisions to keep students on track.

Following is a table that shows concordance between MAP RIT scores and Smarter Balanced cut scores. This table will update as new data becomes available.

Concordance between MAP RIT scores and Smarter Balanced cut scores

Subject	Grade	Smarter Balanced				MAP RIT			
		Level 1	Level 2	Level 3	Level 4	Level 1	Level 2	Level 3	Level 4
		Not Met	Nearly Met	Met	Exceeded	Not Met	Nearly Met	Met	Exceeded
ELA	3	2114–2366	2367–2431	2432–2489	2490–2623	100–190	191–201	202–210	211–350
	4	2131–2415	2416–2472	2473–2532	2533–2663	100–199	200–208	209–216	217–350
	5	2201–2441	2442–2501	2502–2581	2582–2701	100–203	204–213	214–224	225–350
	6	2210–2456	2457–2530	2531–2617	2618–2724	100–205	206–217	218–230	231–350
	7	2258–2478	2479–2551	2552–2648	2649–2745	100–209	210–221	222–234	235–350
	8	2288–2486	2487–2566	2567–2667	2668–2769	100–211	212–224	225–238	239–350
Math	3	2189–2380	2381–2435	2436–2500	2501–2621	100–193	194–203	204–214	215–350
	4	2204–2410	2411–2484	2485–2548	2549–2659	100–201	202–216	217–228	229–350
	5	2219–2454	2455–2527	2528–2578	2579–2700	100–213	214–228	229–237	238–350
	6	2235–2472	2473–2551	2552–2609	2610–2748	100–216	217–229	230–239	240–350
	7	2250–2483	2484–2566	2567–2634	2635–2778	100–220	221–234	235–245	246–350
	8	2265–2503	2504–2585	2586–2652	2653–2802	100–227	228–241	242–251	252–350

¹ <https://www.nwea.org/content/uploads/2015/11/Smarter-Balanced-and-MAP-Linking-Data-Table-One-Sheet-NOV15.pdf>

High School Math Placement:

As explained in Section A of this policy, in determining the mathematics course placement for entering 9th grade students, the Charter School systematically takes multiple objective academic measures of student performance into consideration, including:

- a. Statewide mathematics assessments, including interim and summative assessments through the California Assessment of Student Performance and Progress (“CAASPP”);
- b. Placement tests that are aligned to state-adopted content standards in mathematics;
- c. Recommendation, if available, of each student’s 8th grade mathematics teacher based on classroom assignment and grades;
- d. Recommendation, if any, of each student’s 9th grade mathematics teacher based on classroom assignments and grades provided at the beginning of the school year;
- e. Final grade in mathematics on the student’s official, end of the year 8th grade report card.

Students entering grade 9 are normally placed in Integrated Math I (Algebra I). Those students who completed Integrated Math I (Algebra I) in grade 8 successfully shall be placed in Integrated Math II (Geometry) in grade 9, and those who completed Integrated Math II (Geometry) in grade 8 shall be placed in Integrated Math III (Algebra II) in grade 9. Integrated Math I (Algebra I) and Integrated Math II (Geometry) courses taken in middle school will each be awarded ten (10) high school credits in mathematics.

The Charter School will offer math electives to students who have completed Integrated Math III (Algebra II). These include, but are not limited to, Integrated Math IV (Precalculus), AP Calculus AB, AP Calculus BC, AP Statistics, and other math courses depending on student levels, needs/demands, and availability of teachers and resources.

Mathematics Courses:

MATHEMATICS	
MATH 6	MATH 7
In Grade 6, instructional time will focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking.	In Grade 7, instructional time will focus on four critical areas: (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations; (3) solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and (4) drawing inferences about populations based on samples.
MATH 8	ACCELERATED MATH 6/7
In Grade 8, instructional time will focus on three critical areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem.	This course compacts 6 th and 7 th grade standards and it contains content from 8 th grade. While coherence is retained, in that it logically builds from the 6 th grade, the additional content when compared to the non-accelerated course demands a faster pace for instruction and learning. Content is organized into four critical areas, or units. The Mathematical Practice Standards apply throughout each course and, together with the CCSS, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.
ACCELERATED MATH 7/8	INTEGRATED MATHEMATICS I
This course differs from the non-accelerated 7 th grade course in that it contains content from 8 th grade. While coherence is retained, in that it logically builds from the 6 th grade, the additional content when compared to the non-accelerated course demands a faster pace for instruction and learning. Content is organized into four critical areas, or units. The Mathematical Practice Standards apply throughout each course and, together with the CCSS, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.	The fundamental purpose of Mathematics I is to formalize and extend the mathematics that students learned in the middle grades. The critical areas, organized into units, deepen and extend understanding of linear relationships, in part by contrasting them with exponential phenomena, and in part by applying linear models to data that exhibit a linear trend. Mathematics I uses properties and theorems involving congruent figures to deepen and extend understanding of geometric knowledge from prior grades. The final unit in the course ties together the algebraic and geometric ideas studied. The Mathematical Practice Standards apply throughout

	each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. The critical areas, organized into six units are as follows: 1) Relationships Between Quantities; 2) Linear and Exponential Relationships; 3) Reasoning with Equations; 4) Descriptive Statistics; 5) Congruence, Proof, and Constructions; 6) Connecting Algebra and Geometry through Coordinates.
INTEGRATED MATHEMATICS II	INTEGRATED MATHEMATICS III
The focus of Mathematics II is on quadratic expressions, equations, and functions; comparing their characteristics and behavior to those of linear and exponential relationships from Mathematics I as organized into 6 critical areas, or units. The need for extending the set of rational numbers arises and real and complex numbers are introduced so that all quadratic equations can be solved. The link between probability and data is explored through conditional probability and counting methods, including their use in making and evaluating decisions. The study of similarity leads to an understanding of right triangle trigonometry and connects to quadratics through Pythagorean relationships. Circles, with their quadratic algebraic representations, round out the course. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. The critical areas, organized into six units are as follows: 1) Extending the Number System; 2) Quadratic Functions and Modeling; 3) Expressions and Equations; 4) Applications of Probability; 5) Similarity, Right Triangle Trigonometry, and Proof; 6) Circles With and Without Coordinates.	It is in Mathematics III that students pull together and apply the accumulation of learning that they have from their previous courses, with content grouped into four critical areas, organized into units. They apply methods from probability and statistics to draw inferences and conclusions from data. Students expand their repertoire of functions to include polynomial, rational, and radical functions. ³ They expand their study of right triangle trigonometry to include general triangles. And, finally, students bring together all of their experience with functions and geometry to create models and solve contextual problems. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. The critical areas, organized into four units are as follows: 1) Inferences and Conclusions from Data; 2) Polynomial, Rational, and Radical Relationships; 3) Trigonometry of General Triangles and Trigonometric Functions; 4) Mathematical Modeling.
INTEGRATED MATHEMATICS IV	ALGEBRA I
This course prepares students for work in calculus. Topics include: coordinate geometry with analytical methods and proofs; equations and graphs of conic	The fundamental purpose of this course is to formalize and extend the mathematics that students learned in the middle grades. Because it is built on the middle grades

<p>sections; rectangular and polar coordinates; parametric equations; vectors; the study of polynomial, logarithmic, exponential, and rational functions and their graphs; induction; limits and rate change; continuity; and problem analysis. The course unifies and emphasizes the structure of mathematics.</p>	<p>standards, this is a more ambitious version of Algebra I than has generally been offered. The critical areas, called units, deepen and extend understanding of linear and exponential relationships by contrasting them with each other and by applying linear models to data that exhibit a linear trend, and students engage in methods for analyzing, solving, and using quadratic functions. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. The critical areas, organized into five units are as follows: 1) Relationships Between Quantities and Reasoning with Equations; 2) Linear and Exponential Relationships; 3) Descriptive Statistics; 4) Expressions and Equations; 5) Quadratic Functions and Modeling.</p>
GEOMETRY	ALGEBRA II
<p>The fundamental purpose of the course in Geometry is to formalize and extend students' geometric experiences from the middle grades. Students explore more complex geometric situations and deepen their explanations of geometric relationships, moving towards formal mathematical arguments. Important differences exist between this Geometry course and the historical approach taken in Geometry classes. For example, transformations are emphasized early in this course. Close attention should be paid to the introductory content for the Geometry conceptual category found in the high school CCSS. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. The critical areas, organized into six units are as follows: 1) Congruence, Proof, and Constructions; 2) Similarity, Proof, and Trigonometry; 3) Extending to Three Dimensions; 4) Connecting Algebra and Geometry through Coordinates; 5) Circles With and Without Coordinates; 6) Applications of Probability.</p>	<p>Building on their work with linear, quadratic, and exponential functions, students extend their repertoire of functions to include polynomial, rational, and radical functions. Students work closely with the expressions that define the functions, and continue to expand and hone their abilities to model situations and to solve equations, including solving quadratic equations over the set of complex numbers and solving exponential equations using the properties of logarithms. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. The critical areas for this course, organized into four units, are as follows: 1) Polynomial, Rational, and Radical Relationships; 2) Trigonometric Functions; 3) Modeling with Functions; 4) Inferences and Conclusions from Data.</p>

PRECALCULUS	AP STATISTICS
<p>Precalculus weaves together previous study of algebra, geometry, and functions into a preparatory course for calculus. The course focuses on the mastery of critical skills and exposure to new skills necessary for success in subsequent math courses. Topics include linear, quadratic, exponential, logarithmic, radical, polynomial, and rational functions; systems of equations; and conic sections in the first semester. The second semester covers trigonometric ratios and functions; inverse trigonometric functions; applications of trigonometry, including vectors and laws of cosine and sine; polar functions and notation; and arithmetic of complex numbers. Cross-curricular connections are made throughout the course to calculus, art, history, and a variety of other fields related to mathematics.</p>	<p>The AP Statistics course is equivalent to a one-semester, introductory, non-calculus-based college course in statistics. The course introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. There are four themes in the AP Statistics course: exploring data, sampling and experimentation, anticipating patterns, and statistical inference. Students use technology, investigations, problem solving, and writing as they build conceptual understanding.</p>
AP CALCULUS AB	AP CALCULUS BC
<p>AP Calculus AB is roughly equivalent to a first semester college calculus course devoted to topics in differential and integral calculus. The AP course covers topics in these areas, including concepts and skills of limits, derivatives, definite integrals, and the Fundamental Theorem of Calculus. The course teaches students to approach calculus concepts and problems when they are represented graphically, numerically, analytically, and verbally, and to make connections amongst these representations. Students learn how to use technology to help solve problems, experiment, interpret results, and support conclusions.</p>	<p>AP Calculus BC is roughly equivalent to both first and second semester college calculus courses and extends the content learned in AB to different types of equations and introduces the topic of sequences and series. The AP course covers topics in differential and integral calculus, including concepts and skills of limits, derivatives, definite integrals, the Fundamental Theorem of Calculus, and series. The course teaches students to approach calculus concepts and problems when they are represented graphically, numerically, analytically, and verbally, and to make connections amongst these representations. Students learn how to use technology to help solve problems, experiment, interpret results, and support conclusions.</p>

Acceleration Agreement in Mathematics**Student Name:** _____ **Grade:** _____ **Math Placement:** _____**Please check all the boxes below:**

I have read the mathematics placement policy and I understand the high level of expectations from students in the accelerated math pathways.

I understand my child's placement in an accelerated math course.

I understand that my child's placement in an accelerated math course depends on his/her level and availability of staffing, class size, and scheduling.

I understand the following minimum criteria that must be met by a student to remain in the current mathematics placement:

- Minimum grade of "B-" or 80% on current class grade and on each progress/report card
- Minimum Fall/Winter MAP test score that corresponds to a performance level of 3 ("Standard Met") for grade level (when applicable)
- Teacher recommendation
- Administrator recommendation.

I understand that if my child does not meet the criteria to remain in the current mathematics placement he/she may be transferred to another mathematics placement, in which case the teacher shall specify the mathematics course or level recommended for the student.

Parent/Guardian Name: _____ Signature: _____ Date: _____