

## **PRSD Secondary Math Pathways and Course Sequences**

### **Course Sequences and the Model Algebra I Course**

The 2017 Massachusetts Curriculum Framework for Mathematics represents an opportunity to revisit course sequences in middle and high school mathematics. The PRSD Math Teachers and Administration has systematically considered the full range of opportunities for students related to course offerings and sequencing in mathematics from grades 7-12 in light of these revised standards.

Students who follow the grade-by-grade pre-kindergarten to grade 8 sequence will be prepared for either the traditional high school pathways beginning with Algebra I in grade 9 and will be ready to take a fourth year advanced course in grade 12, such as the Model Precalculus Course, the Model Quantitative Reasoning Course, or other advanced courses offered in the district, such as Statistics.

Decisions about secondary students' course-taking sequences are made with the goal of identifying each student's path to success and ensuring that no student who graduates from PRHS and enrolls in a Massachusetts public college or university will be placed into a non-credit bearing remedial mathematics course.

We have designed multiple pathways for students to take advanced mathematics courses beyond those included in the framework. We have identified that starting in 7th Grade, this is the first opportunity for students to accelerate their pathway, however, this is not the only pathway. The following are 3 key points with coursetaking sequences that are inter-related areas of consideration:

- The rigor of the grades 6–8 standards and the Model High School Algebra I Course standards.
- The offering of the Model High School Algebra I Course in grade 8 for students for whom it is appropriate.
- Options for high school pathways that accelerate starting in grade 9 to allow students to reach advanced mathematics courses, such as Calculus in grade 12.

### **Rigor of Grade 8 and the Model High School Algebra I Standards**

Success in Algebra I is crucial to students' overall academic success and their continued interest and engagement in mathematics. The pre-kindergarten to grade 8 standards in the 2017 Framework present a tight progression of skills and knowledge that is rigorous and designed to provide a strong foundation for success in Algebra I as defined in the High School Model Algebra I Course.

### **Course Sequences and the Model Algebra I Course**

The grade 8 standards address foundations of algebra, a more formal treatment of functions, the exploration of irrational numbers and the Pythagorean Theorem; and include geometry

standards that relate graphing to algebra and statistics concepts; and skills that are sophisticated and connect linear relations with the representation of bivariate data.

The Model Algebra I course formalizes and builds on the grade 8 standards. This course begins with more advanced topics and deepens and extends students' understanding of linear functions, exponential functions and relationships, introduces quadratic relationships, and includes rigorous statistics concepts and skills.

**Offering the Model High School Algebra I course in middle school to grade 8 students for whom it is appropriate (Compacted Pathway)** - below is language from the 2017 MS State Frameworks providing guidance to districts.

The Mathematics Standards in grades 6–8 are coherent, rigorous, and non-redundant, so the offering of high school coursework in middle school to students for whom it is appropriate requires careful planning to ensure that all content and practice standards are fully addressed. For those students ready to move at a more accelerated pace, one option is to compress the standards for any three consecutive grades and/or courses into an accelerated two-year pathway.

Compressing the standards from grade 7, grade 8, and the Model Algebra I (or Model Mathematics I) course into an accelerated pathway for students in grades 7 and 8 could allow students to enter the Model Geometry course in grade 9, thus be on a pathway for Calculus in Grade 12.

Selecting and placing students into accelerated opportunities must be done carefully in order to ensure success. Students who follow a compacted pathway will be undertaking advanced work at an accelerated pace. This creates a challenge for these students as well as their teachers, who will be teaching the grade 8 standards and Model Algebra I standards within a compressed time frame without compromising any of the rigor. **Placement decisions should be made based upon a common assessment and criteria to be reviewed by a team of stakeholders that includes teachers and administrators.**

### **7th Grade Accelerated Math Criteria - 7/8 Accelerated Math Class**

Review team (Principal, Grade 7 Math Teachers, Math Dept. Chair, Assistant Superintendent - as needed)

- *Students meeting 4 out of 5 will be placed into the Grade 7/8 Accelerated Math Class*
- *Students meeting 3 out of 5, with one being the Placement Exam, will be reviewed for placement*
- *Students not meeting the above criteria will be placed in Math 7*
- *Students without a complete set of criteria will be reviewed*
- *Parent override requests will not be honored for Grade 7/8 Accelerated Math Class*

**Criteria**

- MCAS score 5th grade: (515 Meeting - 560 Exceeding)
- Grade in 6th Grade Math at end of 2nd Trimester: (Meeting Standards)
- Quantile scores: (Minimum of Mid Proficient Level on Winter assessment)
- Placement Exam Given in Spring of 6th Grade: (65% or above)
- Recommendation of 6th Grade Math Teacher

*When students are reviewed - additional information such as the 6th Grade MCAS scores received over the summer will be considered.*

**Model HS Algebra I - taught in 8th Grade**

Students who successfully complete the 7th and 8th Grade Accelerated Math Class (grade of C or 75% or above) will be placed into the Model HS Algebra I class as an 8th Grader. This class will be taught in coordination with Algebra I Honors at PRHS.

Students who successfully complete Math 7 (grade of B or 85% or above) and score an 85% on the Algebra Readiness Placement Exam will be placed into the Model HS Algebra I class but may be asked to complete preparation work over the summer to complete the competencies related to 8th Grade standards.