

# **Middle School Mathematics Placement Requirements and Frequently Asked Questions**

<b>PWCS Requirements for Advanced Mathematics Placement in Middle School</b>													
<b>Advanced Placement for Rising 6<sup>th</sup> graders</b>													
<p><b>Math 6 Extended</b> Most students who meet the following criteria are likely to be successful in Math 6 Extended:</p> <ul style="list-style-type: none"> <li>• Math 5 SOL test score of <b>475* or higher</b>;</li> <li>• Minimum of a “<b>B</b>” average in Math 5; and</li> <li>• Parent permission to take an accelerated sequence of courses.</li> </ul> <p>Grade 5 teacher’s observations and support is considered.</p> <p>*Students with 465 - 474 SOL test score may be successful.</p>	<p><b>Math 7 Extended</b> <i>This path should be recommended with great care.</i> In order to be <b>screened</b> for placement into Math 7 Extended as a 6<sup>th</sup> grader, a student should have:</p> <ul style="list-style-type: none"> <li>• Math 5 SOL test score of <b>525 or higher</b>;</li> <li>• Completed Math 5 with an “<b>A</b>” average; and</li> <li>• Parent permission to take the Iowa Algebra Aptitude Test. (IAAT)</li> </ul> <p>Grade 5 teacher’s observations and support will be considered.</p> <p>Most 6<sup>th</sup> grade students who earn 40 points on the sliding scale below are likely to be successful in Math 7 Extended.</p> <p>An example, a student may have a 575 on the Math SOL tests and placed in the 89<sup>th</sup> percentile on the Iowa Algebra Aptitude Test. They would have a total score of 40 points.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;">10 points</th> <th style="text-align: center;">20 points</th> <th style="text-align: center;">30 points</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><b>Qualifying Grade 5 SOL Score</b></td> <td style="text-align: center;">525-549</td> <td style="text-align: center;">550-574</td> <td style="text-align: center;">575-600</td> </tr> <tr> <td style="text-align: center;"><b>IAAT score</b></td> <td style="text-align: center;">86<sup>th</sup>-90<sup>th</sup> percentile</td> <td style="text-align: center;">91<sup>st</sup>-97<sup>th</sup> percentile</td> <td style="text-align: center;">98<sup>th</sup> -99<sup>th</sup> percentile</td> </tr> </tbody> </table> <p>The sliding scale takes into consideration the student’s completion rate of the IAAT as well as the accuracy of the completed questions.</p>		10 points	20 points	30 points	<b>Qualifying Grade 5 SOL Score</b>	525-549	550-574	575-600	<b>IAAT score</b>	86 <sup>th</sup> -90 <sup>th</sup> percentile	91 <sup>st</sup> -97 <sup>th</sup> percentile	98 <sup>th</sup> -99 <sup>th</sup> percentile
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<p><b>Math 7 Extended</b> Most students who meet the following criteria are likely to be successful in Math 7 Extended:</p> <ul style="list-style-type: none"> <li>• Math 6 SOL test score of <b>460*</b> or higher;</li> <li>• “<b>C</b>” average or better in Math 6 Extended;</li> </ul> <p>Math 6 Extended teacher’s observations and support and parent input is considered.</p> <p>*Students with 450-459 SOL test score may be successful.</p>	<p><b>Pre-AP Algebra I</b> Most students who meet the following criteria are likely to be successful in Pre-AP Algebra I:</p> <ul style="list-style-type: none"> <li>• Math 8 SOL test score of <b>465</b> or higher,</li> <li>• Completion of Math 7 Extended with a solid “<b>B</b>” average; and</li> <li>• Math 7 Extended teacher’s observation and support and parent input is considered.</li> </ul>												
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<p><b>Pre-AP Algebra I or Algebra I</b> Most students who meet the following criteria are likely to be successful in Algebra I:</p> <ul style="list-style-type: none"> <li>• Passed the Math 8 SOL test;</li> <li>• Completion of Math 7 Extended with at least a “<b>C</b>” average; and</li> </ul> <p>Math 7 Extended teacher’s observations and support and parent input is considered.</p>	<p><b>Pre-AP Geometry</b> Most students who meet the following criteria are likely to be successful in Pre-AP Geometry:</p> <ul style="list-style-type: none"> <li>• Completion of Pre-AP Algebra I with a verified credit and minimum of a “<b>B</b>” average.</li> </ul>												

**Why does PWCS offer advanced math courses in middle school?**

As students progress through their study of mathematics, some begin to acquire math concepts and processes more quickly than others. In some instances, these students can be well served by accelerating their study of mathematics, allowing them to engage with more complex concepts sooner than students who might benefit from the traditional amount of time and instruction. Prior to making the decision to accelerate the study of mathematics for their children, parents should be aware of critical information. This document aims to inform students and their parents about the benefits and possible drawbacks to making the decision to accelerate.

### **What are the advanced courses in middle school?**

PWCS offers an accelerated mathematics course sequence in 6<sup>th</sup> and 7<sup>th</sup> grades called Extended Mathematics, designed to address the needs of students who learn math at a more rapid pace and have demonstrated a high level of mastery of course content prior to 6<sup>th</sup> grade. This sequence compacts the three years of middle school curriculum into two years and allows a student to earn a high school credit for Algebra I in 8<sup>th</sup> grade. These students take Math 6 Extended in grade 6, which includes all of the 6<sup>th</sup> grade math standards and approximately half of the 7<sup>th</sup> grade standards. Upon successfully completing Math 6 Extended, students continue into Math 7 Extended, which covers the remaining 7<sup>th</sup> grade standards and all of the 8<sup>th</sup> grade standards. This is followed by Algebra I or Pre-Advanced Placement Algebra I in 8<sup>th</sup> grade. Pre-AP Algebra I is an advanced version of Algebra I. This course contains Algebra II extensions that prepare students for the advanced version of the Geometry course (Pre-AP Geometry) and gives students a head start for Algebra II/ Trigonometry should they decide to take this accelerated course after Pre-AP Geometry.

### **How might taking the advanced middle school math courses help a student?**

Taking Algebra I or Pre-Advanced Placement Algebra I in 8<sup>th</sup> grade opens doors to students interested in taking the most advanced high school math courses available in Prince William County Schools. With one math credit in middle school and another four years of math, a student may complete AP Calculus or AP Statistics and earn college credit.

Taking Pre-AP Algebra in 8<sup>th</sup> grade or 7<sup>th</sup> grade positions a student to satisfy the criteria for applying to Thomas Jefferson High School for Science and Technology (a magnet program offered in Fairfax County open to students from Prince William County).

Taking Pre-AP Algebra I in 7<sup>th</sup> grade will position students to complete Functions/Trigonometry or Functions-Analytical Geometry in 10<sup>th</sup> grade meeting the new criteria for applying to the Governor's School @ Innovation Park (GS@IP) in the spring of 2018. Students taking Pre-AP Algebra I in 8<sup>th</sup> grade may still satisfy the criteria for GS@IP by completing Geometry through the Virtual High School during the summer.

### **What if my student does not take the accelerated Extended Mathematics sequence in middle school?**

Both the traditional three-year middle school math sequence (Math 6, Math 7, Math 8) and the two-year "extended" sequence (Math 6 Extended and Math 7 Extended) cover all of the same middle school math standards and give students the foundations needed for Algebra I and for Geometry. The only difference in these sequences should be the rate at which the content is covered. Students who take Algebra I in 9<sup>th</sup> grade are able to master four years of high school mathematics, possibly culminating in a pre-calculus class or AP Statistics, and

should be well prepared mathematically to compete for admission to the best colleges and universities.

**Which PWCS schools support this acceleration for excellent math students?**

All middle schools offer Math 6 Extended, Math 7 Extended, and Pre-AP Algebra I to selected students. All middle schools offer Pre-AP Algebra I in place of or in addition to Algebra I.

**I have heard that some students complete Geometry in 8<sup>th</sup> grade, how do they do that?**

We have a small group of students in Prince William County who are gifted in the area of mathematics to a degree that merits extraordinary levels of acceleration. In these special situations, students may be able to complete Geometry by the end of grade 8. The decision to go this route requires additional careful study on the part of parents, students, and staff, because doing so means students do not receive formal instruction on a significant amount of the middle school curriculum.

**Do students have to complete Geometry in Grade 8 to get into Thomas Jefferson High School?**

No. There is a common misconception in the community that students interested in applying to Thomas Jefferson High School for Science and Technology must complete Geometry before entering the 9<sup>th</sup> grade, which is not true. Parents with questions about the requirements for admission to Thomas Jefferson High School should visit the Fairfax County Public Schools website for more information.

**Do students have to complete Geometry in Grade 8 to get into the Governor's School @ Innovation Park (GS@IP)?**

Currently students need to have completed Pre-AP Geometry by the end of 9<sup>th</sup> grade and Pre-AP Algebra II/Trigonometry by the end of 10<sup>th</sup> grade. The requirements are changing for students applying for the GS@IP in the spring of 2018. Rising 6<sup>th</sup> graders will now need to complete Geometry by the time they enter high school. It is still important that your child be placed appropriately in 6<sup>th</sup> grade so that the student may master the content and be ready for the challenges of GS@IP. If your student's best placement for learning is in Grade 6 Extended Math, he/she may still be ready to apply to GS@IP by taking Geometry through the Virtual High School during the summer before the 9<sup>th</sup> grade.

**What do I need to consider when I think of placing my child in an accelerated course?**

All students need time to develop an understanding of mathematical concepts, to think strategically, and to develop the mathematical processes they will need for study of higher level mathematics. During the middle school years, students are expected not only to master skills, but also to:

- develop proficiency in their mathematical reasoning,
- communicate their mathematical ideas orally and in writing with appropriate precise mathematical terminology,
- make connections between mathematical ideas and to other disciplines,
- represent mathematical ideas in different ways (equations, graphs, tables, diagrams, in words, with models, etc.), and

- be proficient in applying all middle school math knowledge and skills to solve never-before-seen multi-step problems involving critical thinking and use of operations with rational numbers (including positive and negative fractions and decimals).

Three pathways through middle school math are available to meet the needs of students. Parents should be aware that accelerating a student too quickly through math classes and/or skipping over material does not allow them to deeply understand the concepts and their relations to each other. Students who rely on memorization often appear to have mastery in math, but may have the hardest struggle in higher level classes because they have not had the opportunity to develop deep understandings.

### **What are possible outcomes of taking accelerated classes?**

Taking the “extended” middle school math sequence with Pre-AP Algebra I in 8<sup>th</sup> grade

- allows a student to earn a high school Algebra I credit in Grade 8,
- puts a student on a path to complete a calculus course by 12<sup>th</sup> grade,
- satisfies a requirement for an 8<sup>th</sup> grader to apply to Thomas Jefferson High School for Science and Technology, and
- places a student on the path to be prepared for Governor’s School @ Innovation Park if followed by taking Geometry through the Virtual High School during the summer.

### **Based on the outcomes above, why would I consider placing my child in the traditional Grade 6 Math?**

- Selecting a course that challenges your child but does not lead to high levels of frustration will promote confidence, engagement in mathematics, and a continued interest.
- If your child is still developing the foundational concepts, they would benefit from more time to build a deeper understanding of mathematics and avoid developing gaps that would hinder their progress in advanced math classes.
- With a strong foundation, your child will be able to access advanced math courses in high school such as pre-calculus courses and Advanced Placement Statistics. With non-traditional opportunities such as Virtual High School, your child could further accelerate by taking Geometry as a rising 9<sup>th</sup> grader placing them on the path to completing calculus by graduation.

### **What information is used to determine a student’s placement in mathematics?**

The decision to place a student into an advanced math course sequence should be based on multiple sources of information. Student interest and parental requests are important considerations that indicate motivation and available encouragement and support to the student taking on the challenge of more rigorous work. Student grades and teacher recommendations also contribute important information about abilities and past achievement, as well as work habits. SOL test results offer insight to a student’s performance against standards for which they have received instruction, but it is important to remember that SOL test scores only reflect how a student did relative to completed course work. SOL tests are not designed to provide predictive value of future performance. Nevertheless, it is an additional measure to include in the decision-making process. The Iowa Algebra Aptitude Test (IAAT) is a better standardized measure of student potential to learn Algebra than the SOL Test and should be given substantial weight in the decision-making process.

### **When might my student take the Iowa Algebra Aptitude Test?**

The Iowa Algebra Aptitude Test 5<sup>th</sup> Edition (60 items) will be administered:

- In June to fifth grade students who scored 525 or above on the Grade 5 Math SOL Test. The test will be administered at their elementary school during the school day.
- In February to Math 8 Pre-algebra students to help high schools correctly place students for Algebra I in 9<sup>th</sup> grade.

Students must maintain a “C” average or above in order to be considered for placement in the next sequential advanced course. If a student has a “C” at the end of the Grade 6 Extended Math and a borderline SOL test, it is recommended the parent discuss with the student and the teacher options for 7<sup>th</sup> grade. The student may either enroll in Grade 7 Math or Grade 7 Extended Math. If a student has a “D” or “F” at the end of the first quarter or semester, the student will be moved to the appropriate grade level course at that time. Parents and students should be made aware of this policy before placement into the course.

A student who demonstrates exceptional mathematics understanding, but was not initially placed in an advanced course, would be identified by the teacher and moved to the appropriate extended course during the school year. Any student completing Math 6 and moved into Math 7 Extended as a seventh grade student needs a specific plan for accommodations to ensure the seventh grade curriculum is covered in its entirety. Students should not be moved from Math 7 or Math 6 Extended directly to Algebra I because doing so would mean that they miss all 8<sup>th</sup> grade standards.

When students move into PWCS, determination for placement is made by each school, based on previous assessment scores, grades, classes taken, and the school’s assessment of the mastery level of our objectives.

### **What guidelines exist to help determine an appropriate placement for my child?**

The guidelines on the following page have been established to provide appropriate placement into advanced middle school mathematics courses. Data shows that students who meet the requirements listed for each course are likely to be successful.

### **What questions should I ask when considering an accelerated sequence?**

1. Does your child display interest, curiosity, and inventiveness in doing mathematics?
2. Is your child intrinsically motivated to succeed in math?
3. Does your child ask for extra math problems in class or at home?
4. Does your child enjoy playing games involving numbers, puzzles or logic?
5. Does your child find math homework easy, or does he/struggle and need extra help?
6. What is your child’s frustration level when trying to solve difficult problems?
7. How organized is your child?
8. What does your child’s teacher say about your child’s understanding of mathematics?
9. How has your child performed on math standards of learning tests?
10. What other responsibilities does your child have outside of school that require time?