The Winnetka Public Schools Math Grades 5-8

The landscape of mathematics education has changed considerably since any of us were students in math class. Most of us learned math in a procedural fashion and were considered "good in math" if we could memorize definitions and formulas and use them on tests. There was little emphasis on understanding mathematical concepts or applying what we learned to solving new and novel problems. Our children today are part of a completely different world due mainly to the advancement in technology. Our goal in The Winnetka Public Schools is to create mathematical problem solvers who will successfully thrive in this constantly changing and diverse world. Over the course of their K-8 experience students will experience the depth and beauty of mathematics; they will learn math in ways that engage and pique their interest; they will develop flexible, resilient, and efficient skills which will enable them to solve problems they don't already know the answer to; they will develop persistence and confidence which will serve them throughout their math education and in the real world as well.

5th and 6th grade Math

Grade 5 and 6 students attend a daily heterogenous math/science block where they use the Illustrative Mathematics curriculum as their primary resource (*https://im.kendallhunt.com/)*. Illustrative Mathematics is a problem-based curriculum that is aligned with the Common Core State Standards and The Standards of Mathematical Practices. Through this curriculum, students are engaged in carefully crafted and sequenced problems in which they gain a deep conceptual understanding of mathematical concepts along with procedural fluency.

Students are challenged to reason and make meaning of the math, often exploring visual representations, patterns, structure, and properties of operations. Students frequently collaborate with their classmates—they talk about math in both small and large groups settings, listening to each other's ideas, explaining their thinking and strategies, and critiquing the reasoning of others. In these ways they build understanding and develop their verbal and written mathematical communication skills within the classroom community. Differentiation is embedded into instruction and classwork based on formative assessments. Within each grade level, common summative assessments are used.

5th grade Math Course Description

In the 5th grade math class, students learn the 5th grade Common Core Content Standards while engaging in instructional practices grounded in the Common Core Standards for Mathematical Practice. The big ideas in grade 5 include developing fluency with whole number operations and the addition, subtraction, and multiplication of fractions. Students explore division of fractions and decimals in limited cases (unit fractions and decimals divided by whole numbers and whole numbers divided by unit fractions and decimals) and develop an understanding of operations with decimals to thousandths. Students build an understanding of volume and explore the hierarchy of polygons and the coordinate plane.

6th grade Math Course Description

In the 6th grade math class, students learn the 6th grade Common Core Content Standards while engaging in instructional practices grounded in the Common Core Standards for Mathematical Practice. The big ideas in grade 6 include connecting ratio and rate reasoning to whole number multiplication and division and using these concepts to solve problems. Students solidify their understanding of division of fractions and decimals and extend the notion of number to the system of rational numbers, including negative numbers. Students write, interpret, and use expressions and equations and are introduced to statistical thinking.

7th grade Placement Recommendations: Characteristics and Criteria

The following questions are what 6th grade Math teachers consider at the end of May when determining the best fit placement for individual students in 7th grade. Parents will be informed of recommendations prior to the end of the school year.

- Student Skills
  - Do they have a strong work ethic?
  - What's the pacing of their independent work?
  - Do they attend to precision?
  - Do they advocate for themselves?
  - Do they consistently complete homework independently?
  - Do they come prepared for class with all materials?
  - Are they engaged in classroom discussions and activities?

- Mathematical Reasoning
  - Is their mathematical reasoning sophisticated?
  - Do they learn new concepts quickly?
  - Do they connect new learnings to previous ideas?

- Mathematical Disposition
  - Do they love math?
  - Are they self-motivated to take on challenges?
  - Do they persevere when faced with a challenge?

7th and 8th grade Math

Grade 7 and 8 students attend a period of mathematics daily where they use the Big Ideas curriculum. Big Ideas Math encourages a growth mindset in students. Students take their learning from surface-level to deep-level, then transfer that learning by modeling real-life situations. Big Ideas Math is aligned with the Common Core State Standards and The Standards for Mathematical Practice. This rigorous program provides a balance of three important building blocks: conceptual understanding, procedural fluency, and application.

7th grade Math Course Description

In the 7th grade math class the students will learn all 7th grade Common Core Content Standards. This course is taught at a grade-level appropriate pace with time for practice and reteaching. Students will develop independence and communication skills through guided instruction and scaffolding. Students develop organizational skills and are supported in the management of their classwork and nightly homework. There are opportunities for students to deepen their understanding of mathematical concepts.

7th grade Accelerated Math Course Description

In the 7th grade Accelerated math class class the students will learn all 7th grade Common Core Content Standards along with the 8th grade topics of exponents and roots, surface area and volume of cylinders and cones, transformations, and angle relationships with parallel lines. Students will learn a year and a half of content standards within the space of one year. Due to this accelerated pacing, the students are expected to have strong organizational skills and greater independence with respect to their learning. Self advocacy and initiative is expected.

8th grade Math Course Description

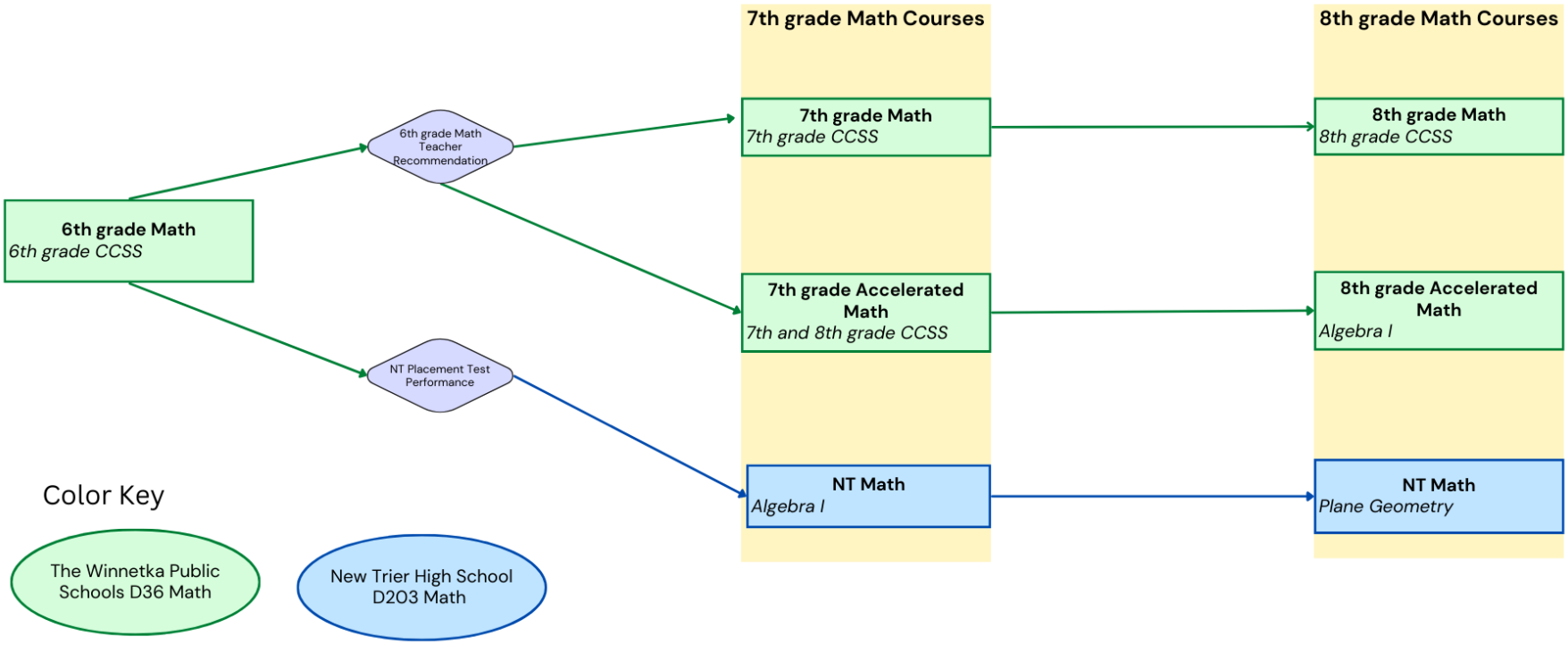
In the 8th grade math class, the students will learn all 8th grade Common Core Content Standards. This course is taught at a grade-level appropriate pace with time for practice and reteaching. Students continue to develop independence and communication skills through guided instruction and scaffolding. The level of abstraction increases this year. Students are expected to have further developed organizational skills and are expected to be more independent in managing their classwork and nightly homework. There are opportunities for students to deepen their understanding of mathematical concepts in preparation for high school algebra.

8th Grade Accelerated Math Course Description

The 8th grade accelerated math class is a highly abstract course. The students will learn all high school algebra common core content standards, including quadratics, as well as the 8th grade common core standards that were not addressed in the accelerated 7th grade math class. Due to this accelerated pacing, the students are expected to have strong organizational skills and independence with respect to their learning. Self advocacy and initiative is expected. If students are successful, they will be recommended for high school geometry.

D36 Math Course Flowchart

This chart depicts the math course options for D36 students in grades 6-8.



MATHEMATICS FLOW CHART

Mathematics as a discipline is an important and beautiful human endeavor, and mathematics has applications in many areas. All students, to the extent of their abilities, should have the opportunity to take part in the broader aspects of mathematics as a way of thinking, as a cultural heritage, and as an experience in grasping ideas, seeing their interrelations, and communicating them to others.

7th	8th	Freshman	Sophomore	Junior	Senior
		LEVEL 2			
		Algebra 1	Plane Geometry	Algebra 2 Essentials	College Alg/Prob & Stats
		Algebra 1	Plane Geometry Geometry, Design, and Construction (level 9)	Algebra 2	Placement based on teacher recommendation for one of the following courses: Precalculus & Trig, or College Algebra & Statistics
	Algebra 1	Plane Geometry	Algebra 2	Precalculus & Trigonometry	Intro to Finite Math & Stats
		LEVEL 3			
		Algebra 1	Plane Geometry Geometry, Design, and Construction (level 9)	Algebra 2	Precalculus & Trigonometry
	Algebra 1 8th grade Accelerated Math	Plane Geometry Summer course option at NT with successful completion of Algebra 1 30-50 students per year	Algebra 2	Precalculus & Trigonometry Summer course option at Oakton CC with successful completion of Algebra 2 10 students each year	Placement based on teacher recommendation for one of following courses: AP Calculus AB, AP Statistics, AP Computer Science, Analytic Geometry, Precalculus & Discrete Math, or Intro Calc & Stats
NT Math program for qualifying Grade 7 and 8 students.		**LEVEL 4**			
Algebra 1	Plane Geometry	Algebra 2 & College Alg with Trig	Analytic Geometry, Precalculus & Discrete Math	AP Calculus BC or AP Computer Science	MVCalculus/Linear Algebra, AP Statistics, or AP Computer Science
	Algebra 1	Plane Geometry	Algebra 2 & College Alg with Trig	Analytic Geometry, Precalculus & Discrete Math	AP Calculus BC, AP Statistics, or AP Computer Science

NOTES:
- Two class titles separated by a forward slash denote a full-year sequence.
- Computer Science is a full-year enrichment course that can be taken after Geometry. This course does not fulfill the graduation requirement in Mathematics. It is not a prerequisite for AP Computer Science.