

# Math Curriculum 7<sup>th</sup> Grade



Thoreau Middle School

# Course Sequencing

The following slide is provided by FCPS to lay out the course sequencing of math classes from 7<sup>th</sup> grade through 12<sup>th</sup> grade.

Summer coursework is available (after an in-person Algebra 1 class) to advance through the sequence faster.

# MATHEMATICS ACADEMIC SEQUENCE OF COURSES K-12

MIDDLE SCHOOL		HIGH SCHOOL			
Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
**Algebra 1 Honors	Geometry Honors	Algebra 2 Honors <i>or</i> Algebra 2	*Precalculus Honors <i>or</i> *Precalculus	AP Calculus BC <i>or</i> AP Calculus AB	Multivariable Calculus <i>or</i> AP Elective
		Algebra 2 Honors <i>or</i> <i>Algebra 2</i>	*Precalculus Honors <i>or</i> IB Standard Level Mathematics I <i>or</i> *Precalculus	IB Higher Level Mathematics I <i>or</i> IB Standard Level Mathematics I	IB Higher Level Mathematics II <i>or</i> IB Standard Level Mathematics II
Mathematics 7 Honors <i>or</i> Mathematics 7	Algebra 1 Honors <i>or</i> Algebra 1	Geometry Honors <i>or</i> Geometry	Algebra 2 Honors <i>or</i> Algebra 2	*Precalculus Honors <i>or</i> *Precalculus	AP Calculus BC <i>or</i> AP Calculus AB
		Geometry Honors <i>or</i> Geometry	Algebra 2 Honors <i>or</i> Algebra 2	*Precalculus Honors <i>or</i> IB Standard Level Mathematics I	IB Higher Level Mathematics I <i>or</i> IB Standard Level Mathematics II
Mathematics 7	Pre-Algebra	Algebra 1 <i>or</i> Algebra 1 Honors	Geometry <i>or</i> Geometry Honors	Algebra 2 <i>or</i> Algebra 2 Honors	*Precalculus <i>or</i> *Precalculus Honors <i>or</i> IB Mathematical Studies SL

# 7<sup>th</sup> Grade Math Courses Taught at TMS

- ❖ Math 7
  - Small group and team taught are available
- ❖ Math 7 Honors
  - Pre-Algebra coursework
- ❖ Algebra 1 Honors
  - Mixed classes with 7<sup>th</sup> and 8<sup>th</sup> grade students
  - Taught by 8<sup>th</sup> grade math teachers

**Algebra I Honors is a High School Course that  
affects the High School GPA**

# All FCPS Math Course Goals:

*Every math course taught in FCPS has the same goals for every student:*

- To build new mathematical knowledge through problem solving and to develop a repertoire of skills and strategies for solving a variety of problem types
- To communicate mathematical ideas coherently and clearly and to analyze and evaluate the mathematical thinking of others
- To use logical reasoning in solving mathematical problems and to explain and justify mathematical ideas
- To understand how mathematical ideas interconnect and build on one another and to use those connections to solve problems
- To create and use a variety of representations in learning, doing, and communicating mathematics

# Math 7



**Math 7 prepares students to take either Pre-Algebra or Algebra 1 in the 8<sup>th</sup> grade.**

This course provides the opportunity for students to examine:

- ▶ Algebra and geometry preparatory concepts and skills
- ▶ Strategies for collecting, analyzing, and interpreting data
- ▶ Number concepts and skills especially proportional reasoning

**Students will take the Math 7 SOL test**

# Math 7 Syllabus

## Quarter 1

- Comparing, ordering, and solving word problems using fractions and decimals
- Solving practical word problems using proportions
- Converting to and from scientific notation

## Quarter 2

- Order of Operations including fractions and decimals
- Solving and checking two-step equations, including word problems
- Solving, checking, and graphing two-step inequalities, including word problems
- Graphing and/or writing additive and proportional relationships given a table, graph, or equation

## Quarter 3

- Translating and reflecting an image on a coordinate plane
- Theoretical vs. Experimental probability, Single Event probability

## Quarter 4

- Comparing line plots, stem and leaf, and circle graphs to histograms
- Finding the volume and surface area of rectangular prisms and cylinders

# Math 7 HN

(Pre-Algebra)

**Math 7 Honors prepares students to take either Algebra 1 or Algebra 1 Honors in the 8<sup>th</sup> grade.**

- This course is the Pre-Algebra curriculum and includes all extensions and enrichment.
- The depth and level of understanding in Math 7 Honors is beyond the scope of Math 7.

**Students will take the Math 8 SOL test**



# Math 7 Honors Syllabus

## Quarter 1

- Categorizing numbers in the Real Number System using Venn diagrams
- Solving practical problems using proportional reasoning
- Writing equations and graphing linear relationships in slope-intercept form

## Quarter 2

- Solving and checking multi-step equations including variables on one or both sides of the equation
- Solving, checking, and graphing multi-step inequalities including variables on one or both sides of the equation, and writing solutions in interval notation
- Transformation an image on a coordinate plane, calculating a scale factor, and finding the missing side of a proportional shape

## Quarter 3

- Solving and applying the Pythagorean Theorem, finding surface area and volume of 3D figures
- Complementary vs. Supplementary angles, vertical angles, and transversals
- Independent vs. Dependent probability (compound probability)

## Quarter 4

- Using box plots to analyze and make predictions on statistical data
- Scatterplots and identifying the line of best fit

# Math 7 Honors

Students who have NOT successfully completed an entire year of AAP Mathematics 6 may require additional independent effort and practice. Students will be expected to advocate for themselves when extra support is needed.

**Math 6** —————→ **Math 7 Honors**

An entire year of math  
(math 7 content) is missed

# Some topics missed...

**Math 6**  **Math 7 Honors**

- Two-step equation solving
- Two-step inequality solving and graphing
- Order of operations with fractions and decimals
- Three-dimensional geometry
- Functions (slope-intercept form)
- Proportional reasoning
- Percent applications

# Compare and Contrast

Math 7 vs. Math 7 HN

## Exponents

Math 7

$$3^2 = 9$$

## Exponents

Math 7 Honors

$$3x^2 \cdot \frac{2}{3}x^4 = 2x^6$$

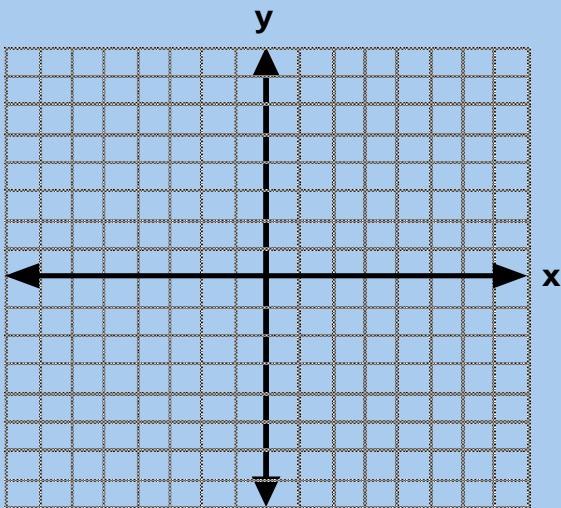
# Compare and Contrast

Math 7 vs. Math 7 HN

## Functions

Math 7

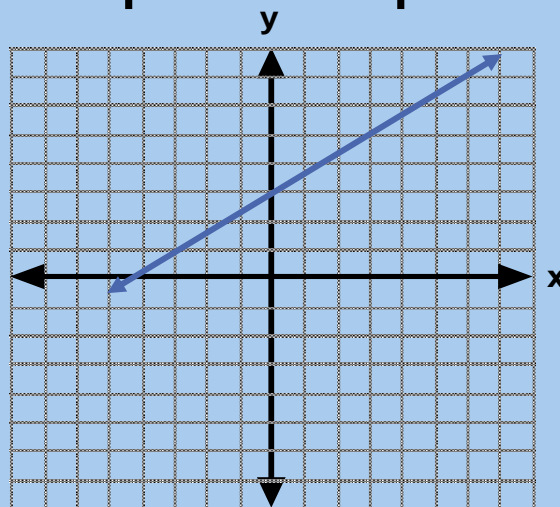
Draw the graph  $y = x + 3$



## Functions

Math 7 Honors

Identify the graph drawn in slope-intercept form.



# Compare and Contrast

Math 7 vs. Math 7 HN

## Equations

Math 7

$$2(x - 3) = 14$$

## Equations

Math 7 Honors

$$4(3x - 5) - 10x = -28 + x$$

# Additional thoughts to consider when deciding course placement...

- What math course does your child want to be taking their senior year of high school?
- Is your child prepared for the rigor and pace of an honors course?
- Is your child also taking a foreign language for High School credit?
- How much support outside of the classroom does your child need from the school and home to be successful in math?

# Additional Questions?

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