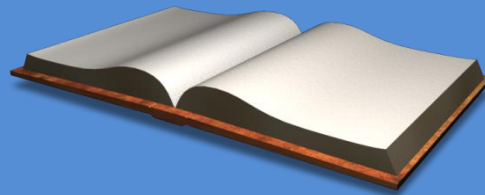


Understanding the Progression of Math Courses in NEISD



According to House Bill 1 (HB1), students in Texas are required to obtain credits for four courses in each subject area of the foundation curriculum for both the Recommended High School Program and the Distinguished High School Achievement Program.



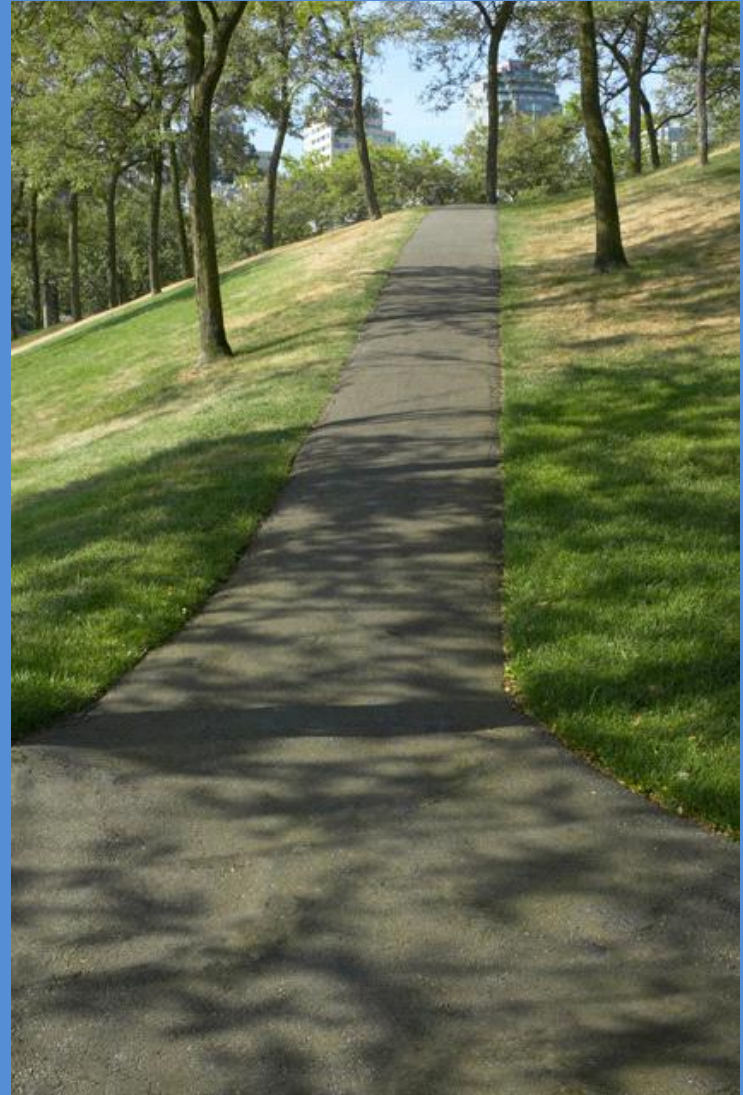
This means high school graduates must earn four credits of high school math.

Three of the credits must be Algebra I, Algebra II, and Geometry.

In NEISD, the 4th credit may be one of the following:

- Pre-Calculus
- Advanced Quantitative Reasoning (AQR)
- AP Statistics
- AP Calculus AB
- AP Calculus BC
- Mathematical Models with Applications (*only on the Recommended Plan*)
- AP Computer Science
- Independent Study Courses

**Use the
following guide
to make an
informed
decision about
your students'
Math Course
Pathway.**



Grade K

Grade 1

Grade 2

Grade 3

Grade 4

Grade 5

Primary Focal Points

<p>Developing whole-number concepts, using patterns, and sorting to explore number, data, and shape</p>	<p>Building number sense through number relationships, adding and subtracting whole numbers, organizing and analyzing data, and working with 2- and 3-dimensional geometric figures</p>	<p>Developing an understanding of the base-ten place value system, comparing and ordering whole numbers, applying addition and subtraction, and using measurement processes</p>	<p>Multiplying and dividing whole numbers, connecting fraction symbols to fractional quantities, and standardizing language and procedures in geometry and measurement</p>	<p>Comparing and ordering fractions and decimals, applying multiplication and division, and developing ideas related to congruence and symmetry</p>	<p>Comparing and contrasting lengths, areas, and volumes of 2- or 3-dimensional geometric figures; representing and interpreting data in graphs, charts, and tables; and applying whole number operations in a variety of contexts</p>
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The Sixth Grade Decision is a “Biggie”



By the end of the fifth grade year, students will need to be thinking about what their high school graduation goals are. They should consider these goals when deciding upon the course path for math they will begin in middle school. Students selecting the PreAP Math Course Path should do so upon entering the 6th grade.

Students entering 6th Grade should
choose either the
Regular or *PreAP*
Math Course Path.

Parents, Counselors and Teachers
are encouraged to help students
make this significant decision.

Grade 6

Grade 7

Grade 8

Regular Middle School Math Course Path and Standards

Curriculum covers all 6th Grade TEKS

Curriculum covers all 7th Grade TEKS

Curriculum covers all 8th Grade TEKS

PreAP Middle School Math Course Path and Standards

PreAP/GT Path is the same as this path but students need to qualify to be in the GT Math program.

Curriculum covers all 6th Grade TEKS and the **majority** of 7th Grade TEKS

Curriculum covers **some** 7th Grade TEKS and all of 8th Grade TEKS

Algebra I
Curriculum covers all Algebra I Course TEKS

Once enrolled in middle school,
students are *strongly discouraged*
from switching math course paths
because...

If a student switches from the Regular Math Course Path to the PreAP Math Course Path between 6th and 7th grade it means a student would be *skipping** the majority of 7th grade curriculum completely. The student would be expected to master 7th grade curriculum on the State Assessment at the end of the 7th grade year. (See below.)

Regular Middle School Math—Course Path and TEKS

6 th Grade	7 th Grade	8 th Grade	9 th Grade
Curriculum covers all 6 th Grade TEKS	Curriculum covers all 7 th Grade TEKS	Curriculum covers all 8 th Grade TEKS	Curriculum covers all Algebra I Course TEKS Additionally, this course reviews specific 8 th Grade TEKS assessed on the 9 th Grade State Assessment.

This arrow represents a student switching paths between 6th and 7th grade. Switching paths results in *skipping the majority of 7th Grade TEKS*.

PreAP Middle School Math—Course Path and TEKS

6 th Grade PreAP	7 th Grade PreAP	8 th Grade PreAP Algebra I	9 th Grade
Curriculum covers all 6 th Grade TEKS and the <i>majority</i> of 7 th grade TEKS *SKIPPED	Curriculum covers <i>some</i> 7 th Grade TEKS and all of 8 th Grade TEKS	Curriculum covers all Algebra I Course TEKS	Curriculum covers all Geometry Course TEKS Additionally, this course reviews specific Algebra I TEKS assessed on the 9 th Grade State Assessment.

So...What would be *SKIPPED?

Students *skipping 7th grade curriculum* would be missing the following concepts as stated in the TEKS that are first introduced in 7th grade and critical to their understanding of 8th grade, as well as other high school math and college math courses:

Number, Operation and Quantitative Reasoning: The student represents and uses numbers in a variety of equivalent forms. The student is expected to:

- Convert between fractions, decimals, whole numbers, and percents mentally, on paper, or with a calculator (TEKS 7.1b)
- Represent squares and square roots using geometric models (TEKS 7.1c)

Number, Operation and Quantitative Reasoning: The student adds, subtracts, multiplies, or divides to solve problems and justify solutions. The student is expected to:

- Represent multiplication and division situations involving fractions and decimals with models, including concrete objects, pictures, words, and numbers (TEKS 7.2a)
- Use multiplication and division to solve problems involving fractions and decimals (TEKS 7.2b)
- Use models such as concrete objects, pictorial models, and number lines, to add, subtract, multiply, and divide integers and connect the actions to algorithms (TEKS 7.2c)
- Use division to find unit rates (TEKS 7.2d)
- Simplify numerical expressions involving order of operations and exponents (TEKS 7.2e)

Patterns, Relationships, and Algebraic Thinking: The student solves problems involving direction proportional relationships. The student is expected to:

- Estimate and find solutions to application problems involving percent (TEKS 7.3a)

Patterns, Relationships, and Algebraic Thinking: The student uses equations to solve problems. The student is expected to:

- Describe the relationship between the terms in an arithmetic sequence and their positions in the sequence (TEKS 7.4c)

So...What would be ***SKIPPED***?

Students *skipping 7th grade curriculum* would be missing the following concepts as stated in the TEKS that are first introduced in 7th grade and critical to their understanding of 8th grade, as well as other high school math and college math courses:

Geometry and Spatial Reasoning: The student compares and classifies two- and three-dimensional figures using geometric vocabulary and properties. The student is expected to:

- Use angle measurements to classify pairs of angles as complementary or supplementary (TEKS 7.6a)
- Use properties to classify triangles and quadrilaterals (TEKS 7.6b)
- Use properties to classify three-dimensional figures, including pyramids, cones, prisms, and cylinders (TEKS 7.6c)
- Use critical attributes to define similarity (TEKS 7.6d)

Geometry and Spatial Reasoning: The student uses coordinate geometry to describe location on a plane. The student is expected to:

- Locate and name points on a coordinate plane using ordered pairs of integers (TEKS 7.7a)
- Graph reflections across the horizontal or vertical axis and graph translations on a coordinate plane (TEKS 7.7b)

Geometry and Spatial Reasoning: The student uses geometry to model and describe the physical world. The student is expected to:

- Sketch three-dimensional figures when given the top, side, and front views (TEKS 7.8a)

Measurement: The student solves application problems involving estimation and measurement. The student is expected to:

- Connect models for volume of prisms (triangular and rectangular) and cylinders to formulas of prisms (triangular and rectangular) and cylinders (TEKS 7.9b)
- Estimate measurements and solve application problems involving volume of prisms (rectangular and triangular) and cylinders (TEKS 7.9c)

So...What would be *SKIPPED?

Students *skipping 7th grade curriculum* would be missing the following concepts as stated in the TEKS that are first introduced in 7th grade and critical to their understanding of 8th grade, as well as other high school math and college math courses:

Probability: The student understands that the way a set of data is displayed influences its interpretation. The student is expected to:

- Make inferences and convincing arguments based on an analysis of given or collected data (TEKS 7.11b)

Probability: The student uses measures of central tendency and variability to describe a set of data. The student is expected to:

- Choose among mean, median, mode, or range to describe a set of data and justify the choice for a particular situation (TEKS 7.12b)

Statistics: The student understands that the way a set of data is displayed influences its interpretation. The student is expected to:

- Appropriately use circle graphs and Venn diagrams (TEKS 7.11a)
- Make inferences and convincing arguments based on an analysis of given or collected data (TEKS 7.11b)

Statistics: The student uses measures of central tendency and range to describe a set of data. The student is expected to:

- Describe a set of data using mean, median, mode, and range (TEKS 7.12a)
- Choose among mean, median, mode, or range to describe a set of data and justify the choice for a particular situation (TEKS 7.12b)

If a student switches from the Regular Math Course Path to the PreAP Math Course Path between 7th and 8th grade it means a student would be *skipping** 8th grade curriculum completely. The student would be expected to master 8th grade curriculum on the State Assessment at the end of the 8th grade year as well as understand content from 8th Grade TEKS assessed on the CCR, PSAT, SAT, ACT, etc... (See below.)

Regular Middle School Math—Course Path and TEKS

6 th Grade	7 th Grade	8 th Grade	9 th Grade
Curriculum covers all 6 th Grade TEKS	Curriculum covers all 7 th Grade TEKS	Curriculum covers all 8 th Grade TEKS	Curriculum covers all Algebra I Course TEKS Additionally, this course reviews specific 8 th Grade TEKS assessed on the 9 th Grade State Assessment.

This arrow represents a student switching paths between 7th and 8th grade. Switching paths results in *skipping critical 8th Grade TEKS*.

PreAP Middle School Math—Course Path and TEKS

6 th Grade PreAP	7 th Grade PreAP	8 th Grade PreAP Algebra I	9 th Grade
Curriculum covers all 6 th Grade TEKS and the majority of 7 th Grade TEKS	Curriculum covers some 7 th Grade TEKS and all of 8 th Grade TEKS *SKIPPED	Curriculum covers all Algebra I Course TEKS	Curriculum covers all Geometry Course TEKS Additionally, this course reviews specific Algebra I TEKS assessed on the 9 th Grade State Assessment.

So...What would be *SKIPPED?

Students **skipping** 8th grade curriculum would be missing the following concepts as stated in the TEKS that are first introduced in 8th grade and critical to their understanding of Algebra I, as well as other high school math and college math courses:

Number, Operation and Quantitative Reasoning: The student understands that different forms of numbers are appropriate for different situations. The student is expected to:

- Approximate values of irrational numbers (TEKS 8.1c)
- Express numbers in scientific notation (TEKS 8.1d)

Number, Operation and Quantitative Reasoning: The student selects and uses appropriate operations to solve problems and justify solutions. The student is expected to:

- Use appropriate operations to solve problems involving rational numbers in problem situations (TEKS 8.2b)

Patterns, Relationships, and Algebraic Thinking: The student identifies proportional or non-proportional linear relationships in problem situations and solves problems. The student is expected to:

- Compare and contrast proportional and non-proportional linear relationships (TEKS 8.3a)

Proportional Reasoning: The student makes connections among various representations of a numerical relationship. The student is expected to generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description). The student is expected to:

- Generate a different representation of data given a table, graph, equation, or verbal description (TEKS 8.4a)

So...What would be *SKIPPED?

Students *skipping 8th grade curriculum* would be missing the following concepts as stated in the TEKS that are first introduced in 8th grade and critical to their understanding of Algebra I, as well as other high school math and college math courses:

Geometry and Spatial Reasoning: The student uses transformational geometry to develop spatial sense. The student is expected to:

- Use dilations to generate similar figures (TEKS 8.6a)

Geometry and Spatial Reasoning: The student uses geometry to model and describe the physical world. The student is expected to:

- Use pictures or models to demonstrate the Pythagorean Theorem (TEKS 8.7c)

Geometry and Spatial Reasoning: The student uses indirect measurement to solve problems. The student is expected to:

- Use the Pythagorean Theorem to solve real-life problems (TEKS 8.9a)

Measurement: The student uses procedures to determine measures of three-dimensional figures. The student is expected to:

- Find and use surface area of three dimensional solids and nets to solve problems (TEKS 8.8a)
- Connect models of cones, pyramids and spheres to formulas for volume (TEKS 8.8b)
- Estimate measurements and use formulas to solve application problems involving lateral and total surface area and volume (TEKS 8.8c)

Measurement: The student uses indirect measurement to solve problems. The student is expected to:

- Use proportional relationships in similar 2-dimensional or 3-dimensional figures to find missing measurements (TEKS 8.9b)
- Describe the resulting effects on perimeter, area and volume when dimensions are changed proportionally (TEKS 8.10a)
- Describe the resulting effect on volume when dimensions of a solid are changed proportionally (TEKS 8.10b)

So...What would be *SKIPPED?

Students *skipping 8th grade curriculum* would be missing the following concepts as stated in the TEKS that are first introduced in 8th grade and critical to their understanding of Algebra I, as well as other high school math and college math courses:

Probability: The student applies concepts of theoretical and experimental probability to make predictions. The student is expected to:

- Find probabilities of dependent events (TEKS 8.11a)
- Use probabilities to make predictions (TEKS 8.11b)

Statistics: The student uses statistical procedures to describe data. The student is expected to:

- Draw conclusions and make predictions using scatterplots (TEKS 8.12b)
- Appropriately use box and whisker plots and histograms (TEKS 8.12c)

Statistics: The student evaluates predictions and conclusions based on statistical data. The student is expected to:

- Evaluate methods of sampling to determine validity of an inference (TEKS 8.13a)
- Recognize misuses of graphical representations (TEKS 8.13b)

The Regular Math Course Path

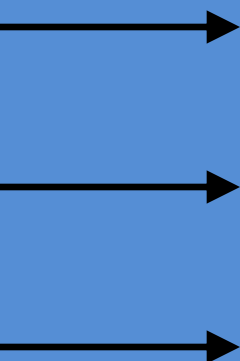


The Recommended Graduation Plan

Students on this plan may choose one of three math course path options in high school.

Grade 9 Grade 10 Grade 11 Grade 12

Math Course Path Option 1
Math Course Path Option 2
Math Course Path Option 3



Algebra I	Geometry	Math Models	Algebra II
Algebra I	Geometry and Math Models	Algebra II	Pre-Calculus or AP Statistics or ARQ or AP Computer Science
Algebra I	Geometry	Algebra II	Pre-Calculus or AP Statistics or AQR or AP Computer Science

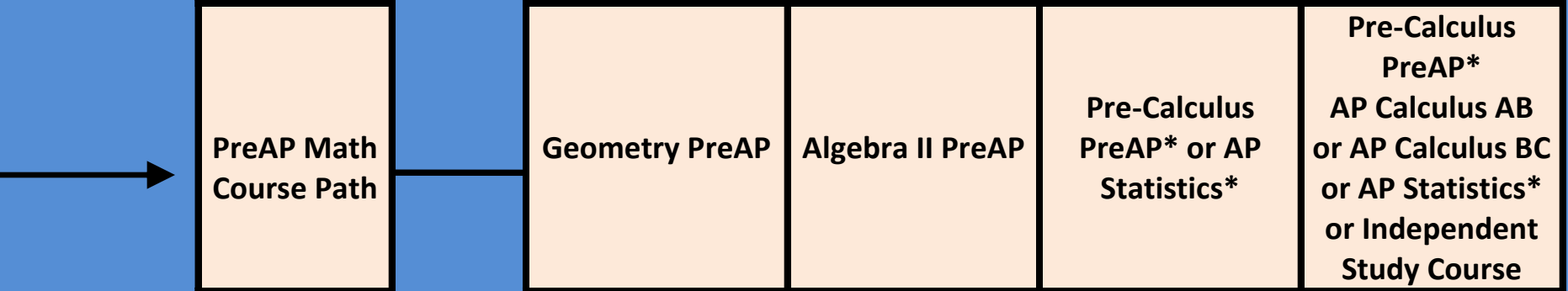
**The PreAP
Math Course
Path**



**The
Distinguished
Graduation
Plan**

Students on this plan
will follow this math
course path in high
school.

9 **10** **11** **12**
Grade **Grade** **Grade** **Grade**



*Pre-Calculus PreAP and AP Statistics can only be taken for one credit

What are the TEKS???

Mathematics

Texas Essential Knowledge and Skills

For Grades K through 12

19 TAC Chapter 111

The mathematics Texas Essential Knowledge and Skills (TEKS) were developed by the state of Texas to clarify what all students should know and be able to do in mathematics in kindergarten through grade 12.

The mathematics TEKS also form the objectives and student expectations for the mathematics portion of the state assessment for grades 3 through 8 and the End of Course Exams for Algebra I, Geometry, and Algebra II.

Some Helpful Links

NEISD Math Webpage:

<http://www.neisd.net/curriculum/SchImprov/math/mathindex.html>

Texas Education Agency:

<http://www.tea.state.tx.us/>

Mathematics TEKS Toolkit:

<http://www.utdanacenter.org/mathtoolkit/>

Texas Math Initiative:

<http://ritter.tea.state.tx.us/math/>

Graduation Requirements in Texas (including FAQs):

<http://www.tea.state.tx.us/index2.aspx?id=6108>