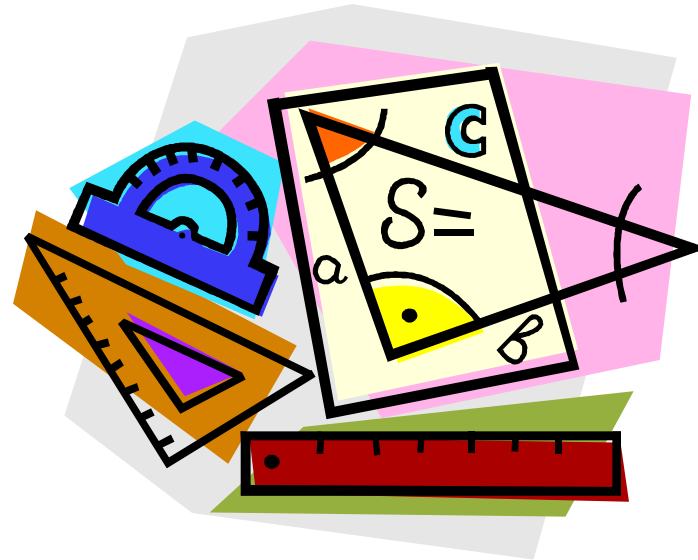


Miami-Dade County Public Schools
Division of Mathematics and Science Education

Suggested Mathematics

Scope and Sequence



Grade 8

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MIAMI-DADE COUNTY PUBLIC SCHOOLS
Division of Mathematics and Science Education
SUGGESTED MATHEMATICS SCOPE AND SEQUENCE FOR GRADES 6-8



Overview

Purpose of the Scope and Sequence

In the summer of 2004, the Division of Mathematics and Science Education responded to the request of administrators and teachers in the field to create a mathematics scope and sequence that would serve as a resource for teachers. Based on feedback provided by teachers, the mathematics scope and sequence was revised in July 2005. The *Scope and Sequence* is formulated for the purpose of providing the teacher with a “road map” for the year. It is designed to help teachers pace for the entire year the content to be covered regarding what students are expected to know, as outlined by the Grade Level Expectations of the *Florida Sunshine State Standards* as well as the objectives contained in the *Miami-Dade Competency-Based Curriculum*. In addition, the *Scope and Sequence* focuses on annually assessed benchmarks contained in the Florida Comprehensive Assessment Test (FCAT) to be administered in February/March and prepares students for the next grade level. The goal of the *Scope and Sequence* is to develop common pacing which will contribute to the improvement of curriculum content and instructional delivery.

Description of the Scope and Sequence

The *Scope and Sequence* identifies content to be covered in the course of thirty-nine weeks. An introduction of the next grade level content has been assigned within the second half of the fourth nine week period. The last two weeks focus on final exam preparation and administration.

- The *Scope and Sequence* targets specific benchmarks and the grade level expectations for those benchmarks on a weekly basis.
- Each week’s scope and sequence will identify the key vocabulary words and manipulatives for the content to be covered for that week. The teacher will be able to prepare instructional materials and manipulatives in advance.
- The *Scope and Sequence* notes each week’s content and content limits by grade level pertaining to the benchmarks identified, to help the teacher align the content taught with the content tested.
- The *Scope and Sequence* is designed to target all five strands within each nine-week period of instruction.
- The *Scope and Sequence* document provides space for teachers to document textbook page numbers.

MIAMI-DADE COUNTY PUBLIC SCHOOLS
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SUGGESTED MATHEMATICS SCOPE AND SEQUENCE FOR GRADES 6-8

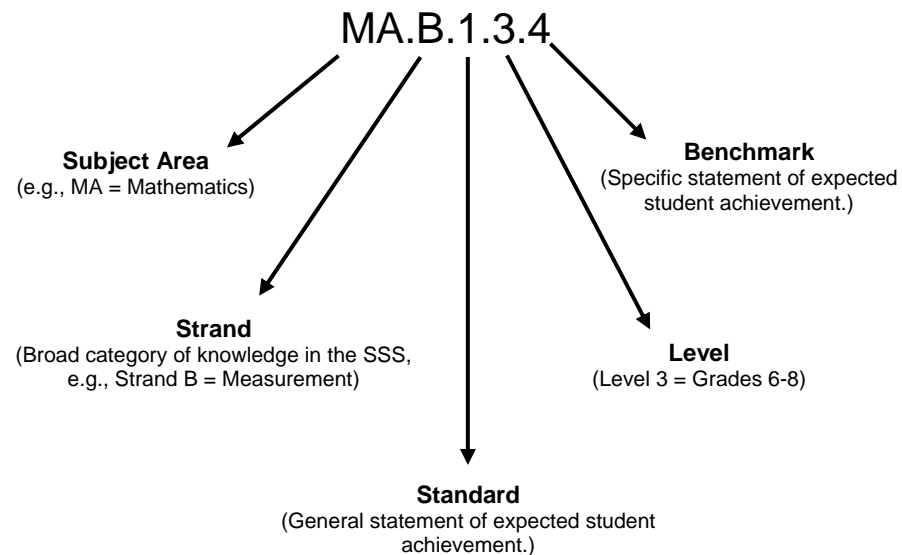


Suggestions for Using the Scope and Sequence Effectively

- Schedule meetings for teachers of the same grade level to review and adjust the scope and sequence as necessary.
- Locate the page numbers in the textbook and fill in the “Page(s) in Textbook” column in the *Scope and Sequence*.
- Assess students regularly to measure student progress.
- Adjust pacing and discuss progress with peers for support purposes.
- Document suggested improvement of the scope and sequence for further support.
- Align scope and sequence with other instructional materials (i.e. other books, Internet, etc).

Understanding the Coding of Each Benchmark

The *Suggested Scope and Sequence* is based upon the Florida Sunshine State Standards (SSS). The benchmark code has five sections as displayed below.



MIAMI-DADE COUNTY PUBLIC SCHOOLS
Division of Mathematics and Science Education
SUGGESTED MATHEMATICS SCOPE AND SEQUENCE FOR GRADES 6-8



Understanding the Components of the Scope and Sequence

Sixth- through Eighth-Grade Sample

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
	<p>Benchmark is noted in bold with the GLEs underneath. The CBC objectives are aligned with the GLEs.</p> <p><i>There may be one or more benchmarks suggested for the same week. Several benchmarks are embedded within others.</i></p>	<p><i>Content Limits define the range of content knowledge and degree of difficulty that should be assessed in the questions for the benchmark.</i></p>	<p><i>Column left blank for teachers to complete here as well as on electronic file.</i></p>	<p><i>List of key vocabulary that is emphasized in the GLEs.</i></p>	<p><i>Suggested resources that support the benchmark/ GLE.</i></p>
↓	↓	↓	↓	↓	↓
Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
1	<p>MA.E.1.3.2</p> <ul style="list-style-type: none"> • Finds the mean, median, and mode of a set of data using raw data, tables, charts, or graphs. • Interprets measures of dispersion (range) and of central tendency. • Determines appropriate measures of central tendency for a given situation or set of data. 	<ul style="list-style-type: none"> • Items will assess finding the range, mean, median, or mode of a set of data presented in a chart, table, graph, or other listing. • No more than ten pieces of data should be used for calculations of the mean. • No more than three categories of information should be used in data sets. • Graphics should be used in at least 70% of these items. 		<p>mean, median, mode, range, central tendency, hypothesis, data, inferences, conclusions</p>	<p>calculators</p>

MIAMI-DADE COUNTY PUBLIC SCHOOLS
Division of Mathematics and Science Education
SUGGESTED MATHEMATICS SCOPE AND SEQUENCE FOR GRADES 6-8



Acknowledgements

This document is a result of the tremendous effort on the part of selected classroom teachers, District Mathematics Supervisors, and other support staff of the Division of Mathematics and Science Education. The following teachers represent those who made major contributions to the *Scope and Sequence for Grades 6-8*.

Linda Bullock

Marie Denis

Maria T. Diaz-Gonzalez

Josie Galloway

Valencia Rolle

Shelley Werner

Regina Williams

If you have comments or suggestions to improve this document, please contact Mrs. Yuria Orihuela, District Mathematics Supervisor, Division of Mathematics and Science Education, at 305-995-2931, or by fax at 305-995-4188.

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
1 (Continued on next page)	<p>MA.E.1.3.1</p> <ul style="list-style-type: none"> Reads and interprets data displayed in a variety of forms including histograms. Constructs and interprets displays of data, (including circle, line, bar, and box-and-whisker graphs) and explains how different displays of data can lead to different interpretations. 	<ul style="list-style-type: none"> Items may include pictographs, charts, stem-and-leaf plots, box-and-whisker plots, scatter plots, data tables, circle graphs, single- and multiple-bar graphs, single- and multiple-line graphs, and Venn diagrams. No more than twelve pieces or pairs of data are to be displayed. Graphics should be used in at least 70% of these items. 		histogram, circle graph, line graph, bar graph, box-and-whisker, stem-and-leaf plots, scatter plots	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
	<p>MA.E.1.3.2</p> <ul style="list-style-type: none"> Finds the mean, median, and mode of a set of data using raw data, tables, charts, or graphs. Interprets measures of dispersion (range) and of central tendency. Determines appropriate measures of central tendency for a given situation or set of data. 	<ul style="list-style-type: none"> Items will assess finding the range, mean, median, or mode of a set of data presented in a chart, table, graph, or other listing. No more than ten pieces of data should be used for calculations of the mean. No more than three categories of information should be used in data sets. Graphics should be used in at least 70% of these items. 		mean, median, mode, measure of dispersion, range, central tendency, hypothesis, data, inferences, conclusions	calculators
	<p>MA.E.1.3.3</p> <ul style="list-style-type: none"> Determines the mean, median, mode, and range of a set of real-world data using appropriate technology. Organizes, graphs, and analyzes a set of real-world data using appropriate technology. 	<ul style="list-style-type: none"> Assessed with MA.E.1.3.1 and MA.E.1.3.2. 		central tendency	calculators

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
1 Continued	<p>MA.E.3.3.1</p> <ul style="list-style-type: none"> Formulates a hypothesis and designs an experiment. Performs the experiment and collects, organizes, and displays the data. Evaluates the hypothesis by making inferences and drawing conclusions based on statistical results. 	<ul style="list-style-type: none"> Items should emphasize interpretation, not collection, or computation. Common misuses of probability and statistics should be limited to: <ul style="list-style-type: none"> inadequate or non-representative sample size incomplete or incorrect graphs over-generalized results over-interpretation of numerical data use of raw data, percents, or statistics (range, median, mean, mode) to misrepresent the data collected misinterpretation of the likelihood and significance of the results Graphics should be used in at least 30% of these items. 		raw data, sample size, likelihood	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
2 (Continued on next page)	<p>MA.A.1.3.1</p> <ul style="list-style-type: none"> Knows word names and standard numerals for integers, fractions, decimals, numbers expressed as percents, numbers with exponents, numbers expressed in scientific notation, absolute value, radicals, and ratios. 	<ul style="list-style-type: none"> Assessed with MA.A.1.3.4. 		integers, exponents, radicals, absolute value, ratios	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
	<p>MA.A.1.3.2</p> <ul style="list-style-type: none"> Compares and orders fractions, decimals, integers, and radicals using graphic models, number lines, and symbols. Compares and orders numbers expressed in absolute value, scientific notation, integers, percents, numbers with exponents, fractions, decimals, radicals, and ratios. 	<ul style="list-style-type: none"> Items may compare and order fractions, decimals, and integers; numbers with exponents; numbers expressed as percents, absolute values, and in scientific notation; and radicals and ratios using graphical displays. Items may compare smaller or larger numbers, or compare the order of magnitude between numbers. Square roots must have radicands less than or equal to 100. 		absolute value, integers, radicals, ratios	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
2 Continued	<p>MA.A.1.3.4</p> <ul style="list-style-type: none"> Knows the relationships among fractions, decimals, and percents given a real-world context. Simplifies expressions using integers, exponents, and radicals. Knows equivalent forms of large and small numbers in scientific and standard notation. Identifies and explains the absolute value of a number. 	<ul style="list-style-type: none"> The place values of the fractional part of decimal numbers should range from tenths through ten-thousandths. Items may include simplified expressions using integers, exponents, radicals, and ratios; large and small numbers in scientific and standard notation, or absolute values. Scientific notation of whole numbers and decimals is limited to hundred millions through hundred-millionths. Negative exponents should be used in scientific notation only. Items will not include repeating decimals. 		fraction, decimal, percent, integers, radicals, absolute value, irrational numbers	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
3 (Continued on next page)	<p>MA.A.2.3.1</p> <ul style="list-style-type: none"> Expresses rational numbers in exponential notation including negative exponents (for example, $2^{-3} = \frac{1}{2^3} = \frac{1}{8}$). Expresses numbers in scientific or standard notation including decimals between 0 and 1. Evaluates numerical or algebraic expressions that contain exponential notation. 	<ul style="list-style-type: none"> Items may provide expressions of rational numbers in exponential notation, including negative exponents, and/or numerical or algebraic expressions that contain exponential notation. Negative exponents may be used in scientific notation only. Scientific notation of decimal fractions should be limited to hundred-millionths. There is no limit on whole numbers when they are expressed in scientific notation. Graphics should be used in at least 30% of these items. 		negative exponent, standard notation, rational number, algebraic expression	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
3 Continued	<p>MA.A.5.3.1</p> <ul style="list-style-type: none"> • Knows if numbers are relatively prime. • Applies number theory concepts to determine the terms in a real number sequence. • Applies number theory concepts, including divisibility rules, to solve real-world or mathematical problems. 	<ul style="list-style-type: none"> • Assessed with MA.D.1.3.1 and MA.D.1.3.2. 		sequence, relatively prime, real number	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
	<p>MA.A.3.3.2</p> <ul style="list-style-type: none"> • Writes and simplifies expressions from real-world situations using the order of operations. 	<ul style="list-style-type: none"> • Expressions may include parentheses, exponents, multiplication, division, addition, and/or subtraction. • Items should include one- or two-digit whole numbers and exponents up to the fifth power. • In order to focus the assessment on the order of operations, items should use numbers that students can solve without a calculator. • Items that include selecting the appropriate operation are not assessed with this benchmark, but are assessed by MA.A.3.3.3. 		order of operations, exponents, expressions	calculators

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
4	<p>MA.D.1.3.1</p> <ul style="list-style-type: none"> • Reads, analyzes, and describes graphs of linear relationships. • Uses variables to represent unknown quantities in real-world problems. • Uses the information provided in a table, graph, or rule to determine if a function is linear and justifies reasoning. • Finds a function rule to describe tables of related input-output variables. • Predicts outcomes based upon function rules. 	<ul style="list-style-type: none"> • Items should not use more than two variables or include more than two operations. • Items involving function tables should be able to be solved using a pattern in the y-values or a pattern in the relationship between the x- and y-values • Graphics should be used in at least 70% of these items. 		linear relationships, variables, function, function rule	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
5 (Continued on next page)	<p>MA.D.2.3.1</p> <ul style="list-style-type: none"> • Translates verbal expressions and sentences into algebraic expressions, equations, and inequalities. • Translates algebraic expressions, equations, or inequalities representing real-world relationships into verbal expressions or sentences. 	<ul style="list-style-type: none"> • Items should include only one or two variables and no more than two operations. • The use of concrete and symbolic expressions should be limited to rational numbers. • Items should rely primarily on translations from the written word to equations and inequalities, and from equations and inequalities to the written word. 		algebraic expressions, inequalities, multiple-step linear equations	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
5 Continued	<p>MA.D.2.3.1</p> <ul style="list-style-type: none"> Evaluates algebraic expressions, equations, and inequalities by substituting integral values for variables and simplifying the results. Simplifies algebraic expressions that represent real-world situations by combining like terms and applying the properties of real numbers. 	<ul style="list-style-type: none"> Items should include only one or two variables and no more than two operations. The use of concrete and symbolic expressions should be limited to rational numbers. Items should rely primarily on translations from the written word to equations and inequalities, and from equations and inequalities to the written word. 		algebraic expressions, inequalities, multiple-step linear equations	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
6	<p>MA.D.2.3.2</p> <ul style="list-style-type: none"> Simplifies algebraic expressions with a maximum of two variables. Solves single- and multi-step linear equations and inequalities that represent real-world situations. 	<ul style="list-style-type: none"> Items should contain no more than two variables and no more than two operations. Items containing equations or inequalities, the equation or inequality should be linear. 		algebraic expressions, inequalities, multiple-step linear equations	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
	<p>MA.B.1.3.2</p> <ul style="list-style-type: none"> Applies formulas for finding rates, distance, time, and angle measures. Describes and uses rates of change (for example, temperature as it changes throughout the day, or speed as the rate of change in distance over time) and other derived measures. 	<ul style="list-style-type: none"> Items involving rate should not be limited to time/distance problems, but should include other rated measure; e.g., rates of change for temperature as it changes throughout the day, or speed as the rate of change in distance over time, and other derived measures. 		rates of change, distance	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
7	<p>MA.D.2.3.1</p> <ul style="list-style-type: none"> Solves single- and multiple-step linear equations and inequalities in concrete or abstract form. Graphs linear equations on the coordinate plane using tables of values. Graphically displays real-world situations represented by algebraic equations or inequalities. 	<ul style="list-style-type: none"> Items involving graphing of inequalities will be restricted to a number line. 		linear equations, linear inequalities, coordinate plane	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
8	<p>MA.D.1.3.2</p> <ul style="list-style-type: none"> Interprets and creates tables and graphs (function tables). Writes equations and inequalities to express relationships. Graphs equations and inequalities to explain cause-and-effect relationships. Interprets the meaning of the slope of a line from a graph depicting a real-world situation. 	<ul style="list-style-type: none"> Functions may be from all four quadrants. Items should include no more than three operations. When the student is required to create or recognize an expression from a table, graph, or verbal description, a linear expression should be used. Items should rely primarily on tables or graphs to present and/or interpret cause-and-effect relationships. 		inequalities, function table, cause-and-effect	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
9	<p>MA.C.3.3.2</p> <ul style="list-style-type: none"> Given an equation or its graph, finds ordered-pair solutions (for example, $y = 2x$). Given the graph of a line, identifies the slope of the line (including the slope of vertical and horizontal lines). 	<ul style="list-style-type: none"> Items will assess all four quadrants. Items may involve finding the x-intercept, the y-intercept, the midpoint of a horizontal or vertical line segment, or the intersection of two lines. Items may assess the slope of lines (including the slope of vertical and horizontal lines) and determine the x- and y-intercepts of a line. Items may assess parallel or perpendicular properties of lines. Items should be shown on a coordinate grid and use coordinate geometry to locate and/or describe objects. Graphics should be used in 100% of these items. 		equation, ordered pairs, slope, vertical line, horizontal line, parallelism, perpendicularity, x intercept, y-intercept, midpoint, intersecting point	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
10	<p>MA.C.3.3.2</p> <ul style="list-style-type: none"> Given the graph of a linear relationship, applies and explains the simple properties of lines on a graph, including parallelism, perpendicularity, and identifying the x- and y-intercepts, the midpoint of a horizontal or vertical line segment, and the intersection point of two lines. 	<ul style="list-style-type: none"> Items will assess all four quadrants. Items may involve finding the x-intercept, the y-intercept, the midpoint of a horizontal or vertical line segment, or the intersection of two lines. Items may assess the slope of lines (including the slope of vertical and horizontal lines) and determine the x- and y-intercepts of a line. Items may assess parallel or perpendicular properties of lines. Items should be shown on a coordinate grid and use coordinate geometry to locate and/or describe objects. Graphics should be used in 100% of these items. 		equation, ordered pairs, slope, vertical line, horizontal line, parallelism, perpendicularity, x intercept, y -intercept, midpoint, intersecting point	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
11 (Continued on next page)	<p>MA.C.2.3.1</p> <ul style="list-style-type: none"> Use the properties of parallelism, perpendicularity, and symmetry in solving real-world problems. Identifies congruent and similar figures in real-world situations and justifies the identification. Identifies and performs the various transformations (reflection, translation, rotation, dilation) of a given figure on a coordinate plane. 	<ul style="list-style-type: none"> Items should assess only geometric concepts of two-dimensional figures but may include graphics of three-dimensional objects. Items may involve applications of the Pythagorean Theorem. Items involving circumference and area of circles should use numbers compatible with $\frac{22}{7}$ as a representation of π, even though students may use 3.14 to solve the problem. Items involving π should be either MC or ER items. Graphics should be used in at least 70% of these items. 		symmetry, congruent, transformations, reflection, translation, rotation, dilation, tessellation	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
11 Continued	MA.C.2.3.2 <ul style="list-style-type: none"> • Continues a tessellation pattern using the needed transformations. • Creates an original tessellating tile and tessellation pattern using a combination of transformations. 	<ul style="list-style-type: none"> • Items will assess tessellations or figures to be tessellated. • Graphics should be used in 100% of these items. 		tessellation	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
12	MA.C.1.3.1 <ul style="list-style-type: none"> • Determines and justifies the measures of various types of angles based upon geometric relationships in two- and three-dimensional shapes. • Compares regular and irregular polygons and two- and three-dimensional shapes. • Draws and builds three-dimensional figures from various perspectives (for example, flat patterns, isometric drawings, nets). • Knows the properties of two- and three-dimensional figures. 	<ul style="list-style-type: none"> • Items will assess identifying basic properties of lines, congruent figures, various types of angles, and angle relationships including complementary, supplementary, and vertical angles. • Items will assess attributes of regular and irregular polygons represented as flat patterns, isometric drawings, nets, and three-dimensional figures. • Items assessing three-dimensional figures will use rectangular prisms, right circular cylinders, pyramids, cones, spheres, or hemispheres. • Items should utilize only a single figure, with no comparisons to other figures or transformations. • Graphics should be used in 100% of these items. 		angles, two-dimensional, three-dimensional, regular polygon, irregular polygon, flat patterns, isometric drawing, nets, cylinders, lines, congruent, complementary and supplementary angle	geometric solids

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
13	<p>MA.B.1.3.1</p> <ul style="list-style-type: none"> • Uses concrete and graphic models to explore and derive formulas for surface area and volume of three-dimensional regular shapes, including pyramids, prisms, and cones. • Solves and explains real-world problems involving surface area and volume of three-dimensional shapes. 	<ul style="list-style-type: none"> • Items may assess finding linear measure, weight, capacity, time, temperature, perimeter, area, circumference, surface area, and volume. • Short response items should use graphic models to derive formulas for surface area and volume of three-dimensional regular shapes, including pyramids, prisms, and cones. • Where possible, items should use graphic models to derive formulas for surface area and volume of three-dimensional regular shapes, including pyramids, prisms, and cones. • The number of two- or three-dimensional figures assessed in an item should not exceed two. • Where possible, items involving circumferences and areas of circles should use numbers compatible with $\frac{22}{7}$ as a representation of π even though students may use 3.14 in solving the problem. • Items involving π should be short-response. • Graphics should be used in at least 70% of these items. 		surface area, volume, pyramids, prisms, cones, circumference, π , perimeter, area, two- and three-dimensional	geometric solids

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
14	<p>MA.A.3.3.1</p> <ul style="list-style-type: none"> • Knows the effects of the four basic operations on whole numbers, fractions, mixed numbers, decimals, and integers. • Knows the inverse relationship of positive and negative numbers. • Applies the properties of real numbers to solve problems (commutative, associative, distributive, identity, equality, inverse, and closure). 	<ul style="list-style-type: none"> • Items will include the effects of the four basic operations on whole numbers, fractions, mixed numbers, and decimals, and the use of properties of real numbers to solve problems (commutative, associative, distributive, identity, equality, and the inverse relationship of rational numbers). • Items with fractions are limited to positive, single-digit numerators and denominators and/or decimals not to exceed the thousandths place. • Place value of decimals is not to exceed the thousandths place. • Items assessing the inverse relationship should be limited to integers. 		whole number, fraction, mixed number, decimal, inverse relationship, commutative, associative, distributive, identity, equality, closure	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
15	<p>MA.A.4.3.1</p> <ul style="list-style-type: none"> • Knows appropriate estimation techniques for a given situation using real numbers. • Estimates to predict results and to check reasonableness of results. 	<ul style="list-style-type: none"> • The data presented to students may be either precise values, a range of values, or a combination of precise values and estimates of other values. • Item situations should require estimation to find the solution and should not lend themselves to the calculation of an exact amount. • Graphics should be used in at least 50% of these items. 		estimation, predict, reasonableness, comparisons	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
	<p>MA.B.3.3.1</p> <ul style="list-style-type: none"> • Knows a variety of strategies to estimate, describe, make comparisons, and solve real-world and mathematical problems involving measurements. 	<ul style="list-style-type: none"> • Assessed MA.A.4.3.1. 		estimate	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
16	<p>MA.A.3.3.2</p> <ul style="list-style-type: none"> • Knows the appropriate operations to solve real-world problems involving integers, ratios, rates, proportions, numbers expressed as percents, decimals, and fractions. • Solves real-world problems involving integers, ratios, proportions, numbers expressed as percents, decimals, and fractions in two- or three-step problems. • Solves real-world problems involving percents including percents greater than 100% (for example percent of change, commission). 	<ul style="list-style-type: none"> • Expressions may include parentheses, exponents, multiplication, division, addition, and/or subtraction. • Items should include one- or two-digit whole numbers and exponents up to the fifth power. • In order to focus the assessment on the order of operations, items should use numbers that students can solve without a calculator. • Items that include selecting the appropriate operation are not assessed with this benchmark, but are assessed by MA.A.3.3.3. 		ratios, proportions, commission	Calculator
17	<p>MA.B.1.3.3</p> <ul style="list-style-type: none"> • Knows how a change in a figure's dimensions affects its perimeter, area, circumference, surface area, or volume. • Knows how changes in the volume, surface area, area, or perimeter of a figure affect the dimensions of the figure. • Solves real-world or mathematical problems involving the effects of changes either to the dimensions of a figure or to the volume, surface area, area, perimeter or circumference of figures. 	<ul style="list-style-type: none"> • Items may assess how a change in a figure's dimensions affects its perimeter (including circumference), area, surface area, or volume, or how changes in the volume, surface area, area, or perimeter of a figure affect the dimensions of the figure. • Increasing the dimensions of a figure, using scale factors that are whole numbers, should result in similar figures. • Decreasing the dimensions of a figure, using scale factors that are common-unit fractions with denominators of 2, 3, or 4, should result in similar figures. • Changes in figures involving volume should be based primarily on rectangular solids. • Graphics should be used in at least 50% of these items. 		scale factor, surface area, perimeter, area, volume, circumference	1-inch cubes

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
18	<p>MA.B.1.3.4</p> <ul style="list-style-type: none"> Interprets and applies various scales including those based on number lines, graphs, models, and maps. (Scale may include rational numbers.) Constructs and uses scale drawings to recreate a given situation. 	<ul style="list-style-type: none"> Items may require students to demonstrate knowledge of proportional relationships in scale drawings or to solve real-world problems, including distance problems, using a scale drawing. Items should involve interpreting and applying various scales including those based on number lines, graphs, models, and maps. 		metric units, customary units	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
19	Administer Mid-term Exams and Essays.				
20	<p>MA.E.2.3.1</p> <ul style="list-style-type: none"> Compares and explains the results of an experiment with the mathematically expected outcomes. Calculates simple mathematical probabilities for independent and dependent events. 	<ul style="list-style-type: none"> Items may include probabilities for independent and dependent events. Mathematical expectations of probabilities will be assessed using simple empirical data or theoretical probabilities. Graphics should be used in at least 70% of these items. 		outcomes, probability, independent and dependent events	spinners, number cubes, marbles, color tiles
	<p>MA.E.2.3.2</p> <ul style="list-style-type: none"> Predicts the mathematical odds for and against a specified outcome in a given real-world situation. 	<ul style="list-style-type: none"> Situations assessed may include finding the mathematical odds for and against a specified outcome. Most items developed for this benchmark should assess simple events. Compound events are limited to independent occurrences. Items assessing compound events should not exceed sixteen outcomes in a sample space. Probabilities should be based on whole numbers, fractions or decimals, and should not include negative numbers. Items should use the phrases “odds in favor of” and “odds against.” 		odds, compound events	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
21	MA.A.1.3.3 <ul style="list-style-type: none"> • Knows examples of rational and irrational numbers in real-world situations. • Describes the meanings of rational and irrational numbers using physical or graphical displays. • Constructs models to represent rational and irrational numbers. 	<ul style="list-style-type: none"> • Assessed with MA.A.1.3.4 and MA.D.2.3.1. 		Refer to instructional materials for suggested vocabulary (i.e. found in textbooks, Internet, etc).	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
22	MA.A.3.3.3 <ul style="list-style-type: none"> • Solves multi-step real-world problems involving fractions, decimals, and integers using appropriate methods of computation, such as mental computation, paper and pencil, and calculator. 	<ul style="list-style-type: none"> • Items may include problems dealing with percents used to find sales tax, discount, simple interest, and percent of increase or decrease. 		sales tax, discount, simple interest, percent of increase and decrease	calculator
23	MA.B.2.3.1 <ul style="list-style-type: none"> • Finds measures of length, weight or mass, and capacity or volume using proportional relationships and properties of similar geometric figures. 	<ul style="list-style-type: none"> • Assessed with MA.A.4.3.1, MA.B.1.3.1, MA.B.1.3.2, and MA.B.1.3.4. 		length, weight, mass, capacity, geometric figures, proportional relationships, similar figures	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
24	<p>MA.C.3.3.1</p> <ul style="list-style-type: none"> Observes, explains, makes, and tests conjectures regarding geometric properties and relationships (among regular and irregular shapes of two and three dimensions). 	<ul style="list-style-type: none"> Items should assess the geometric properties and concepts described in MA.C.1.3.1 and MA.C.2.3.1. (These are properties of and relationships pertaining to regular and irregular figures, and the concepts of symmetry, reflections, congruency, similarity, perpendicularity, parallelism, and transformations.) Items will not assess three-dimensional figures. Graphics should be used in at least 70% of these items. 		conjectures, similarity, vertical and horizontal distance	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
25	<p>MA.C.3.3.1</p> <ul style="list-style-type: none"> Applies the Pythagorean Theorem in real-world problems (for example, finds the relationship among sides in $45^\circ - 45^\circ$ and $30^\circ - 60^\circ$ right triangles). 	<ul style="list-style-type: none"> Items may assess vertical distance, horizontal distance, and simple applications of the Pythagorean Theorem. Graphics should be used in at least 70% of these items. 		Pythagorean Theorem, right triangle	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
	<p>MA.B.1.3.2</p> <ul style="list-style-type: none"> Applies formulas for finding rates, distance, time, and angle measures. Describes and uses rates of change (for example, temperature as it changes throughout the day, or speed as the rate of change in distance over time) and other derived measures. 	<ul style="list-style-type: none"> Items involving rate should not be limited to time/distance problems, but should include other rated measures; e.g. rates of change for temperature as it changes throughout the day, or speed as the rate of change in distance over time, and other derived measures. 		rates, distance	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
26	<p>MA.B.2.3.2</p> <ul style="list-style-type: none"> • Solves problems using mixed units within each system, such as feet and inches, hours and minutes. • Solves problems using the conversion of measurements within the customary system. • Solves problems using the conversions of measurement within the metric system. 	<ul style="list-style-type: none"> • All conversions of units must be within the same system of measurement (metric or customary). • Items may involve mixed units within each system, such as converting hours and minutes to seconds. 		Refer to instructional materials for suggested vocabulary (i.e. found in textbooks, Internet, etc).	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
27	Review Benchmarks for Weeks 1-26				
28	WEEK OF FCAT and NRT TESTING				
29	WEEK OF FCAT and NRT TESTING				

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
30	MA.B.4.3.1 <ul style="list-style-type: none"> • Selects the appropriate unit of measure for a given situation. • Knows the precision of different measuring instruments. • Determines the appropriate precision unit for a given situation. • Identifies the number of significant digits as it relates to the least precise unit of measure. • Determines the greatest possible error of a given measurement and the possible actual measurements of an object. 	<ul style="list-style-type: none"> • Not applicable 		Refer to instructional materials for suggested vocabulary (i.e. found in textbooks, Internet, etc).	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
31	MA.A.2.3.2 <ul style="list-style-type: none"> • Expresses base ten numbers as equivalent numbers in different bases, such as base two, base five, and base eight. • Discusses the application of the binary (base two) number system in computer technology. • Expresses non-base ten numbers as equivalent numbers in base ten. 	<ul style="list-style-type: none"> • Not applicable 		base two, base five, binary	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
32	MA.B.4.3.2 <ul style="list-style-type: none"> • Applies significant digits in the real-world context. • Selects and uses appropriate instruments, technology, and techniques to measure quantities and dimensions to a specified degree of accuracy. 	<ul style="list-style-type: none"> • Not applicable 		significant digits	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
33	MA.D.1.3.2 <ul style="list-style-type: none"> • Interprets and creates tables and graphs (function tables). • Writes equations and inequalities to express relationships. • Graphs equations and inequalities to explain cause-and-effect relationships. • Interprets the meaning of the slope of a line from a graph depicting a real-world situation. 	<ul style="list-style-type: none"> • Functions may be from all four quadrants. • Items should include no more than three operations. • When the student is required to create or recognize an expression from a table, graph, or verbal description, a linear expression should be used. • Items should rely primarily on tables or graphs to present and/or interpret cause-and-effect relationships. 		inequalities, function table, cause-and-effect	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
34	Introduce Ninth Grade Benchmark to prepare students for next grade. MA.C.3.4.2 <ul style="list-style-type: none"> • The student using a rectangular coordinate system (graph) applies and algebraically verifies properties of two- and three-dimensional figures, including distance, midpoint, slope, parallelism, and perpendicularity. 	<ul style="list-style-type: none"> • Parabolic relations will not be used. • Three-dimensional figures will not be assessed. • Items should be based on using a rectangular coordinate grid. • Coordinate grids should be used in 100% of these items. 		coordinate system, distance, midpoint, slope, parallelism, perpendicularity	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
35 Continued	Introduce Ninth Grade Benchmark to prepare students for next grade. MA.C.3.4.2 <ul style="list-style-type: none"> • The student using a rectangular coordinate system (graph) applies and algebraically verifies properties of two- and three-dimensional figures, including distance, midpoint, slope, parallelism, and perpendicularity. 	<ul style="list-style-type: none"> • Parabolic relations will not be used. • Three-dimensional figures will not be assessed. • Items should be based on using a rectangular coordinate grid. • Coordinate grids should be used in 100% of these items. 		coordinate system, distance, midpoint, slope, parallelism, perpendicularity	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).

Suggested Eighth Grade Mathematics Scope and Sequence

Week	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Content Limits for Test Items	Page(s) in Textbook	Vocabulary	Manipulatives
36	<p>Introduce Ninth Grade Benchmark to prepare students for next grade. MA.D.2.4.2</p> <ul style="list-style-type: none"> The student uses systems of equations and inequalities to solve real-world problems graphically, algebraically, and with matrices. 	<ul style="list-style-type: none"> Items may require students to solve equations or formulas for one variable in terms of the others. 		matrices	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
37	<p>Introduce Ninth Grade Benchmark to prepare students for next grade. MA.D.2.4.2</p> <ul style="list-style-type: none"> The student uses systems of equations and inequalities to solve real-world problems graphically, algebraically, and with matrices. 	<ul style="list-style-type: none"> Items may require students to solve equations or formulas for one variable in terms of the others. 		matrices	Refer to instructional materials for suggested use (i.e. textbooks, Internet, etc).
38	<ul style="list-style-type: none"> Review for and Administer Final Exams 				
39	<ul style="list-style-type: none"> Administer Final Exams 				