2014 and 2016 CCRS Standards Comparison Guide

(**Mathematics**)

Kindergarten				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
K.CC.7	Compare two numbers between 1 and 10 presented as written numerals.	Compare two numbers between 1 and *20* presented as written numerals.		
K.OA.1	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.	Represent addition and subtraction*, in which all parts and whole of the problem are within 10,* with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.		
K.OA.2	Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.	Solve addition and subtraction word problems *within 10 involving situations of adding to, taking from, putting together and taking apart with unknowns in all positions* by using objects or drawings to represent the problem.	After teaching Kindergarten and First grade as a looping teacher that missing addends or subtrahends are too abstract for Kindergarten and by First grade when that standard is tested again with unknowns in all positions they have a better understanding of the parts.	No change. Committee recommended this remain as an introduction to subsequent standards.

Note: All APA Feedback comments are recorded in this document as they were submitted to the MDE.

Kindergarten				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
K.NBT.1	Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.	Compose and decompose numbers from 11 to 19 into ten ones and some further ones *to understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones,* e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8).		
K.G.5	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.	Model **objects** in the world by drawing and building two- and three-dimensional shapes.	Kindergarten students don't have enough abstract thought and fine motor skills based in art to draw a 3-d figure. Plus truly you can't draw a 3-d because even drawn it is flat and on the same plane. If we want our students to truly understand the wording in upper grades then we need to expect them using those same wordings in our standards and make sure we don't ask them to do or create something that in later grades will have them confused.	Revise this standard as outlined below. Model objects in the world by drawing two-dimensional shapes and building three-dimensional shapes.

Grade 1				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
New MS standards (and a split)	Tell and write time in hours and half-hours using analog and digital clocks.	***1.MD.3a***: Tell and write time in hours and half-hours using analog and digital clocks. ***1.MD.3b:*** Identify the days of the week, the number of days in a week, and the number of weeks in each month.		
New MS standard		***1.MD.5:*** Identify the values of all U.S. coins and know their comparative values (e.g., a dime is of greater value than a nickel). Find equivalent values (e.g., a nickel is equivalent to 5 pennies). Use appropriate notation (e.g., 69¢)	I feel that saying ALL U.S. coins lends into half dollar, quarter dollar pieces, etc. I feel they need to master the commonly used coins well before introducing coins that they may or may not ever see. Also since we count by 1s, 2s, 5s, and 10s, I feel that counting like coins should be added into the standard. However, finding equivalent values should be limited to like coins and within 25. I feel it would be better if the coins were listed specifically. Will half dollar coins and dollar coins be included? Will they have to know the values of these coins as well?	Revise this standard as outlined below. ***1.MD.5a:*** Identify the value of all U.S. coins (penny, nickel, dime, quarter, half-dollar, and dollar coins). Use appropriate cent and dollar notation (e.g., 25¢, $1). ***1.MD.5b:*** Know the comparative values of all U.S. coins (e.g., a dime is of greater value than a nickel). ***1.MD.5c:*** Count like U.S. coins up to the equivalent of a dollar. ***1.MD.5d:*** Find the equivalent value for all greater value U.S. coins using like value smaller coins (e.g., 5 pennies equal 1 nickel; 10 pennies equal dime, but not 1 nickel and 5 pennies equal 1 dime).

Grade 2				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
2.NBT.2	Count within 1000; skip-count by 5s, 10s, and 100s.	Count within 1000; skip-count by 5s starting at any number ending in 5 or 0. Skip-count by 10s and 100s starting at any number.		
2.NBT.5	Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	***Fluently*** add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.		
2.OA.2	Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.	***Fluently*** add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.		
New MS standards (and a split)	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. *Example: If you have 2 dimes and 3 pennies, how many cents do you have?*	***2.MD.8a:*** Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. *Example: If you have 2 dimes and 3 pennies, how many cents do you have?* ***2.MD.8b***: ***Fluently*** use a calendar to answer simple real world problems such as "How many weeks are in a year?" or "James gets a $5 allowance every 2 months, how much money will he have at the end of each year?"		

Grade 3				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
3.OA.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = ? ÷ 3, 6 × 6 = ?.*	Determine the unknown whole number in a multiplication or division equation relating three whole numbers, with factors 0-10. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = ? ÷ 3, 6 × 6 = ?.*		
3.OA.6	Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*	Understand division as an unknown-factor problem, where a remainder does not exist. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8 with no remainder*		
3.OA.7	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.	***Fluently*** multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. Know from memory all products of two one-digit numbers; and fully understand the concept when a remainder does not exist under division.		

Grade 3				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
3.OA.8	Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	Solve two-step (two operational steps*)* word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. Include problems with whole dollar amounts.		
3.NBT.2	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	***Fluently*** add and subtract (including subtracting across zeros) within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. Include problems with whole dollar amounts.		
3.NF.3a	Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.	Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize that comparisons are valid only when the two fractions refer to the same whole.		

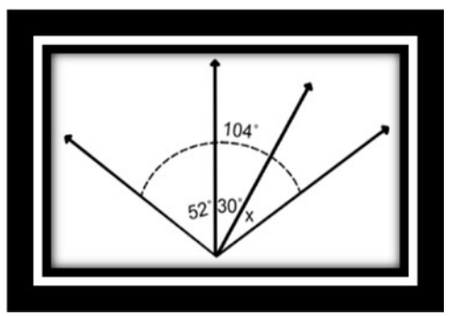
Grade 3				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
3.G.1	Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	Understand that shapes in different categories (e.g., rhombuses, rectangles, circles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.		
3.MD.7b	Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.	Multiply side lengths to find areas of rectangles with whole-number side lengths (where factors can be between 1 and 10, inclusively) in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.		
3.MD.7d	Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.	Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. *Recognize area as additive.*		

Grade 3				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
3.MD.8	Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	Solve real world and mathematical problems involving perimeters of polygons, including*:* finding the perimeter given the side lengths, finding an unknown side length, and exhibiting *(including, but not limited to: modeling, drawing, designing, and creating)* rectangles with the same perimeter and different areas or with the same area and different perimeters.	Too wordy and confusing. The words all sound somewhat redundant.	No change. Committee recommended this remain in place to clarify what is required in student performance.

Grade 4				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
4.OA.3	Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	Solve multistep *(two or more operational steps)* word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.		
4.NBT.4	Fluently add and subtract multi-digit whole numbers using the standard algorithm.	***Fluently*** add and subtract *(including subtracting across zeros)* multi-digit whole numbers using the standard algorithm.		
4.NF.1	Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	Recognizing that the value of "n" cannot be 0, explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.		

Grade 4				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
4.NF.3b	Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.*	Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model (including, but not limited to: concrete models, illustrations, tape diagram, number line, area model, etc.). *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.*		
4.NF.4c	Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*	Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers do you expect your answer to lie?*		

Grade 4				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
4.MD.1	Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36),…*	Know relative sizes of measurement units within one system of units including km, m, cm*, mm*; kg, g*, mg*; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table*. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36),…*		
4.MD.2	Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	Use the four operations to solve word problems involving · *intervals of time* · *money* · *distances* · *liquid volumes* · *masses of objects* including problems *involving simple fractions or decimals*, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.		

Grade 4				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
4.MD.7	Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure. *Example: Find the missing angle using an equation.* 		

Grade 5				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
5.NBT.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left (e.g., "*In the number 3.33, the underlined digit represents 3/10, which is 10 times the amount represented by the digit to its right (3/100) and is 1/10 the amount represented by the digit to its left (3))*.		
5.NBT.5	Fluently multiply multi-digit whole numbers using the standard algorithm.	***Fluently*** multiply multi-digit whole numbers using the standard algorithm.		
5.NBT.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	Add, subtract, multiply, and divide decimals to hundredths, using concrete models *(to include, but not limited to: base ten blocks, decimal tiles, etc.)* or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.		

Grade 5				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
5.MD.1	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.	Convert among different-sized standard measurement units within a given measurement system *(customary and metric)* (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.		

Grade 6				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
6.NS.2	Fluently divide multi-digit numbers using the standard algorithm.	***Fluently*** divide multi-digit numbers using the standard algorithm.		
6.NS.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	***Fluently*** add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.		
New MS Standard		***6.NS. 9****: Apply and extend previous understandings of addition and subtraction to add and subtract integers; represent addition and subtraction on a horizontal or vertical number line diagram.* *a. Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.*		

Grade 6				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
		b. Understand p + q as the number located a distance |q| from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of integers by describing real-world contexts. *c. Understand subtraction of integers as adding the additive inverse, p – q = p + (–q). Show that the distance between two integers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.* *d. Apply properties of operations as strategies to add and subtract integers.*		
6.EE.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. *For example, in a*	Use variables to represent two quantities in a real-world problem that change in relationship to one another. • *Write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable.* • *Analyze the relationship between the dependent and independent variables using*		

Grade 6				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
	problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.	*graphs and tables, and relate these to the equation.* *For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.*		
6.SP.5c	Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.	Giving quantitative measures of center (median and/or mean) and variability (interquartile range ~~and/or mean absolute deviation~~), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.		

Grade 7				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
7.EE.4a	Solve word problems leading to equations of the form *px + q = r* and *p(x + q) = r*, where *p*, *q*, and *r* are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*	Solve word problems leading to equations of the form *px + q = r* and *p(x + q) = r*, where *p*, *q*, and *r* are specific rational numbers. Solve equations of these forms ***fluently***. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*		
7.SP.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability on either team ~~(mean absolute deviation)~~; on a dot plot, the separation between the two distributions of heights is noticeable.*		

Grade 7				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*	Use measures of center and measures of variability (i.e. inter-quartile range) for numerical data from random samples to draw informal comparative inferences about two populations*. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*		

Grade 8				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
8.EE.7b	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	Solve linear equations *and inequalities* with rational number coefficients, including *those* whose solutions require expanding expressions using the distributive property and collecting like terms.		

Compacted Mathematics Grade 7				
-Compacted Mathematics Grade 7 consists of content from the Grade 7 Math and Grade 8 Math courses.- -The information provided below indicates proposed revisions to standards that will impact this course.-				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
7.EE.4a	Solve word problems leading to equations of the form *px + q = r* and *p(x + q) = r*, where *p*, *q*, and *r* are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*	Solve word problems leading to equations of the form *px + q = r* and *p(x + q) = r*, where *p*, *q*, and *r* are specific rational numbers. Solve equations of these forms ***fluently***. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*		
7.SP.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability on either team ~~(mean absolute deviation)~~; on a dot plot, the separation between the two distributions of heights is noticeable.*		

Compacted Mathematics Grade 7				
-Compacted Mathematics Grade 7 consists of content from the Grade 7 Math and Grade 8 Math courses.- -The information provided below indicates proposed revisions to standards that will impact this course.-				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*	Use measures of center and measures of variability (i.e. inter-quartile range) for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*		
8.EE.7b	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	Solve linear equations *and inequalities* with rational number coefficients, including *those* whose solutions require expanding expressions using the distributive property and collecting like terms.		

Compacted Mathematics Grade 8 with Integrated Math I				
-Compacted Mathematics Grade 8 with Integrated Math I consists of content from the Grade 8 Mathematics & Integrated Math I courses.- -The information provided below indicates proposed revisions to standards that will impact this course.-				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
Grade 8	NONE	NONE		
A-REI.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	Solve systems of linear equations algebraically, exactly, ~~approximately~~, and graphically while focusing on pairs of linear equations in two variables.		
A-CED.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	Create equations in *two variables* to represent relationships between quantities; graph equations on coordinate axes with labels and scales.		

Compacted Mathematics Grade 8 with Algebra I				
-Compacted Mathematics Grade 8 with Algebra I consists of content from the Grade 8 mathematics and Algebra I courses.- -The information provided below indicates proposed revisions to standards that will impact this course.-				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
Grade 8	NONE	NONE		
N-RN.3	Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	Explain why: • *the sum or product of two rational numbers is rational;* • *the sum of a rational number and an irrational number is irrational; and* • *the product of a nonzero rational number and an irrational number is irrational.*		

Compacted Mathematics Grade 8 with Algebra I				
-Compacted Mathematics Grade 8 with Algebra I consists of content from the Grade 8 mathematics and Algebra I courses.- -The information provided below indicates proposed revisions to standards that will impact this course.-				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
N-Q.2	Define appropriate quantities for the purpose of descriptive modeling.	Define appropriate quantities for the purpose of descriptive modeling. *[Footnote added: Refer to Quantities section of High School Number and Quantity Conceptual Category.]*		
A-APR.3	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial *(limit to 1st- and 2nd-degree polynomials)*.		
A-CED.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	Create equations in *two variables* to represent relationships between quantities; graph equations on coordinate axes with labels and scales.		
A-REI.4b	Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.	Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions ~~and write them as $a \pm bi$ for real numbers a and b~~.		

Compacted Mathematics Grade 8 with Algebra I				
-Compacted Mathematics Grade 8 with Algebra I consists of content from the Grade 8 mathematics and Algebra I courses.- -The information provided below indicates proposed revisions to standards that will impact this course.-				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
A-REI.5	Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	Given a system of two equations in two variables, *show and explain why the sum of equivalent forms of the equations produces the same solution as the original system.*		
A-REI.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	Solve systems of linear equations algebraically, exactly, ~~approximately~~, and graphically while focusing on pairs of linear equations in two variables.		
A-REI.11	Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where (x) and/or (x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, *rational, absolute value, and exponential functions*.	I would rather the standard include quadratic functions instead of rational functions to give students more opportunity to re-visit the work that has been previously done with parabolas. I think rational functions, along with their horizontal and vertical asymptotes should be an Algebra 2 topic. This allows Algebra 1 to retain its focus on linear, quadratic, and exponential functions.	Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where (x) and/or $g(x)$ are linear, quadratic, absolute value, and exponential functions.
F-IF.3	Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.	Recognize that sequences are *functions whose* domain is a subset of the integers.		

Compacted Mathematics Grade 8 with Algebra I				
-Compacted Mathematics Grade 8 with Algebra I consists of content from the Grade 8 mathematics and Algebra I courses.- -The information provided below indicates proposed revisions to standards that will impact this course.-				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
F-IF.7a	Graph linear and quadratic functions and show intercepts, maxima, and minima.	Graph *functions (linear and quadratic)* and show intercepts, maxima, and minima.		
F-IF.7b	Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	Graph square root, ~~cube roo~~t, and piecewise-defined functions, including ~~step functions~~ and absolute value functions**.**		
F-BF.1a	Write a function that describes a relationship between two quantities. a. Determine an explicit expression, a recursive process, or steps for calculation from a context.	Write a function that describes a relationship between two quantities. a. Determine an explicit expression or steps for calculation from a context.		
F-LE.3	Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	This standard is **removed** from the Algebra I course.		
S-ID.1	Represent data with plots on the real number line (dot plots, histograms, and box plots).	Represent *and analyze* data with plots on the real number line (dot plots, histograms, and box plots)		

Algebra I				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
N-RN.3	Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	Explain why: • *the sum or product of two rational numbers is rational;* • *the sum of a rational number and an irrational number is irrational; and* • *the product of a nonzero rational number and an irrational number is irrational.*		
N-Q.2	Define appropriate quantities for the purpose of descriptive modeling.	Define appropriate quantities for the purpose of descriptive modeling. *[Footnote added: Refer to Quantities section of High School Number and Quantity Conceptual Category.]*		
A-APR.3	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial *(limit to 1st- and 2nd-degree polynomials)*.		
A-CED.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	Create equations in *two variables* to represent relationships between quantities; graph equations on coordinate axes with labels and scales.		

Algebra I				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
A-REI.4b	Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.	Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions ~~and write them as $a \pm bi$ for real numbers a and b~~.		
A-REI.5	Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	Given a system of two equations in two variables, *show and explain why the sum of equivalent forms of the equations produces the same solution as the original system.*		
A-REI.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	Solve systems of linear equations algebraically, exactly, ~~approximately~~, and graphically while focusing on pairs of linear equations in two variables.		

Algebra I				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
A-REI.11	Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where (x) and/or (x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	Explain why the *x*-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, *rational, absolute value, and exponential functions*.	I would rather the standard include quadratic functions instead of rational functions to give students more opportunity to re-visit the work that has been previously done with parabolas. I think rational functions, along with their horizontal and vertical asymptotes should be an Algebra 2 topic. This allows Algebra 1 to retain its focus on linear, quadratic, and exponential functions.	Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where (x) and/or (x) are linear, quadratic, absolute value, and exponential functions.
F-IF.3	Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.	Recognize that sequences are *functions whose* domain is a subset of the integers.		
F-IF.7a	Graph linear and quadratic functions and show intercepts, maxima, and minima.	Graph *functions (linear and quadratic)* and show intercepts, maxima, and minima.		
F-IF.7b	Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	Graph square root, ~~cube roo~~t, and piecewise-defined functions, including ~~step functions~~ and absolute value functions.		
F-BF.1a	Write a function that describes a relationship between two quantities. a. Determine an explicit expression, a recursive process, or steps for calculation from a context.	Write a function that describes a relationship between two quantities. a. Determine an explicit expression or steps for calculation from a context.		

Algebra I				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
F-LE.3	Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	This standard is **removed** from the Algebra I course.		
S-ID.1	Represent data with plots on the real number line (dot plots, histograms, and box plots).	Represent *and analyze* data with plots on the real number line (dot plots, histograms, and box plots)		

Algebra II				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
A-CED.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	This standard is **added to** the Algebra II course. Note that in Algebra I (the previous course), the standard omits the concept of "or more variables."		
A-CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.	This standard is **added to the** Algebra II course.		

Algebra II				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
A-REI.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	Solve systems of linear equations algebraically, exactly, ~~approximately~~, and graphically while focusing on pairs of linear equations in two variables.		
F-TF.5	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.	This standard is **removed** from Algebra II and placed in the Algebra III and Advanced Mathematics Plus courses.		
F-TF.8	Prove the Pythagorean identity $\sin(\Theta)^2 + \cos(\Theta)^2 = 1$ and use it to find $\sin(\Theta)$, $\cos(\Theta)$, or $\tan(\Theta)$, given $\sin(\Theta)$, $\cos(\Theta)$, or $\tan(\Theta)$ and the quadrant of the angle.	This standard is **removed** from Algebra II and placed in the Algebra III course.		
F-LE.3	Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	This standard is **added to** the Algebra II course.		

Integrated Math I				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
A-REI.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	Solve systems of linear equations algebraically, exactly, approximately, and graphically while focusing on pairs of linear equations in two variables.		

Integrated Math I				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
A-CED.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	Create equations in *two variables* to represent relationships between quantities; graph equations on coordinate axes with labels and scales.		

Integrated Math II				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
A-CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.	This standard is **added to** the Integrated Math II courses.		
A-REI.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	This standard is **added to** the Integrated Math II course and revised shown here: Solve systems of linear equations algebraically, exactly, ~~approximately~~, and graphically while focusing on pairs of linear equations in two variables.		

Integrated Math III				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
None	None	None		

Geometry				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
None	None	None		

Calculus				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
None	None	None		

Foundations of Algebra				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
None	None	None		

SREB Math Ready				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
None	None	None		

Advanced Placement (AP) Calculus AB/BC				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
None	None	None		

Advanced Placement (AP) Statistics				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
None	None	None		

Advanced Mathematics Plus				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
F-TF.5	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.	This standard is **added to** the Advanced Mathematics Plus course.		

Algebra III				
Standard Identifier	**Original Standard (May 2015)**	**Proposed Revision (December 2015)**	**APA Forum Feedback (December 2015 – January 2016)**	**MDE Response / Final Standard (January 2016)**
F-TF.5	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.	This standard is **added to** the Algebra III course.		
F-TF.8	Prove the Pythagorean identity $\sin(\Theta)^2 + \cos(\Theta)^2 = 1$ and use it to find $\sin(\Theta)$, $\cos(\Theta)$, or $\tan(\Theta)$, given $\sin(\Theta)$, $\cos(\Theta)$, or $\tan(\Theta)$ and the quadrant of the angle.	This standard is **added to** the Algebra III course.		

Fluency/Fluently Defined

An emphasis on fluency has also been proposed for key standards in the *2015 Mississippi College- and Career-Readiness Standards (MS CCRS) for Mathematics*. As a result, the following information is proposed for inclusion in the 2016 MS CCRS for Mathematics:

Throughout the *2016 Mississippi College- and Career-Readiness Standards for Mathematics* Grades K-5 standards, the words fluency and fluently will appear in bold, italicized, and underlined font (for example: ***fluently***). With respect to student performance and effective in-class instruction, the expectations for mathematical fluency are explained below:

Fluency is not meant to come at the expense of understanding, but is an outcome of a progression of learning and sufficient thoughtful practice. It is important to provide the conceptual building blocks that develop understanding in tandem with skill along the way to fluency; the roots of this conceptual understanding often extend one or more grades earlier in the standards than the grade when fluency is finally expected.

Wherever the word fluently appears in a MS CCR content standard, the word means quickly and accurately. It is important to understand that this is not explicitly tied to assessment purposes, but means more or less the same as when someone is said to be fluent in a foreign language. To be fluent is to flow: Fluent isn't halting, stumbling, or reversing oneself.

A key aspect of fluency in this sense is that it is not something that happens all at once in a single grade, but requires attention to student understanding along the way. It is important to ensure that sufficient practice and extra support are provided at each grade to allow all students to meet the standards that call explicitly for fluency.

Glossary

To provide additional clarity to content standards and key concepts in Grades K-12 for both students and teachers, thirty-two (32) vocabulary words have been **added to** the *2015 Mississippi College- and Career-Readiness Standards (MS CCRS) for Mathematics* Glossary. The following terms and their corresponding definitions are proposed for inclusion in the 2016 MS CCRS for Mathematics:

- *Absolute value*
- *Addend*
- *Algebra*
- *Coefficient*
- *Constant*
- *Difference*
- *Dilation*
- *Dividend*
- *Divisor*
- *Measures of Center*
- *Measures of Variability*
- *Minuend*
- *Mode*
- *Polygon*
- *Product*
- *Quadrilateral*
- *Qualitative Data*
- *Quality*
- *Quantitative Data*
- *Quantity*
- *Quotient*
- *Rectangle*
- *Reflection*
- *Rhombus*
- *Rotation*
- *Square*
- *Subtrahend*
- *Sum*
- *Term*
- *Translation*
- *Trapezoid*
- *Variable*