DRAFT Proposed Revisions
Texas Essential Knowledge and Skills (TEKS)
Mathematics, Kindergarten-Grade 5

Prepared by the State Board of Education (SBOE) TEKS Review Committees

First Draft, July 2011

In 2010-2011 the Commissioner's Mathematics Advisory Group was convened to offer recommendations regarding the next generation of mathematics standards in Texas. *The Commissioner's Draft of the Texas Mathematics Standards* reflects the recommendations of the Commissioner's Mathematics Advisory Group and a panel of national advisors in mathematics. The SBOE-appointed mathematics TEKS review committees used *The Commissioner's Draft of the Texas Mathematics Standards* as a starting point for their recommendations for revisions to the TEKS.

These draft proposed revisions reflect the recommended changes of the committees to the standards in *The Commissioner's Draft of the Texas Mathematics Standards.* Proposed additions are shown in green font with underlines (additions) and proposed deletions are shown in red font with strikethroughs (~~deletions~~).

Comments in the right-hand column provide explanations for the proposed changes. The following notations were used as part of the explanations:

CRS—information added or changed to align with the Texas College and Career Readiness Standards (CCRS)

ER—information added, changed, or deleted based on expert reviewer feedback

MV—multiple viewpoints from within the committee

VA—information added, changed, or deleted to increase vertical alignment

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Introduction to the Texas Essential Knowledge and Skills for Mathematics

The desire to achieve education excellence is the driving force behind the Texas Essential Knowledge and Skills for mathematics, guided by the College and Career Readiness Standards. By embedding statistics, probability, and finance, ~~and~~ while focusing on fluency and deep understanding, Texas will lead the way in mathematics education and prepare all Texas students for the ~~technological~~ challenges they will face in the 21st century.

The process standards are integrated at every grade level. When possible, students will apply mathematics to problems arising in everyday life, society and the workplace. Students will use a problem solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, ~~and~~ evaluating the problem-solving ~~problem~~ process and the reasonableness of the solution. They will select appropriate tools such as real objects, manipulatives, paper and pencil, and technology and ~~or~~ techniques such as mental math, estimation, formulas, theorems, and number sense to solve problems efficiently. Effective communication of mathematical ideas, reasoning, and their implications using multiple representations, such as symbols, diagrams, graphs and language will be emphasized. They will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and ~~create and use representations to organize, record, and~~ communicate mathematical ideas. They will ~~explain,~~ display, explain ~~or~~ justify, or prove mathematical ideas and arguments using precise mathematical language in written or oral communications.

In Kindergarten, instructional time should focus on three critical areas: (I) understanding counting and cardinality; (II) understanding addition as joining and subtraction as separating; and (III) comparing objects by measureable attributes.

(I) Students develop number and operations through several fundamental concepts. Students know number names and the counting sequence. Counting and cardinality lay a solid foundation for number. Students apply the principles of counting to make the connection between numbers and quantities.

(II) Students use meanings of numbers to create strategies for solving problems and responding to practical situation involving addition and subtraction.

(III) Students identify characteristics of objects that can be measured and directly compare objects according to these measureable attributes.

Kindergarten

~~Mathematical Process Standards Kindergarten~~		
~~I.~~	~~Apply mathematics to problems arising in everyday life, society and the workplace.~~	VA—Process Standards moved to knowledge and skills statements
~~II.~~	~~Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution and evaluating the problem-solving process.~~	
~~III.~~	~~Select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.~~	
~~IV.~~	~~Communicate mathematical ideas, reasoning, and their implications using symbols, diagrams, graphs, and language.~~	
~~V.~~	~~Create and use representations to organize, record, and communicate mathematical ideas.~~	
~~VI.~~	~~Explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications.~~	

Grade K Focal Areas		
Number and Operations	▲	Understanding counting and cardinality
Number and Operations	●	Understanding addition as combining and subtraction as separating
Measurement and Data	■	Comparing objects by measurable attributes

Supporting Topics for the Focal Areas in Grade K and Grade 1		
Number and Operations	▲●■	Representing, comparing, and ordering whole numbers
Two-Dimensional and Three-Dimensional Figures	■	Identifying figures and their attributes
	+	Classifying 2D and 3D figures
	■	Composing 2D figures
	+	Describing location
Measurement and Data	▲●■	Representing data
Color and symbol shows the connection between Focal Areas and Supporting Topics. + Indicates topic supports Focal Area in Grade 1		

Kindergarten

Introduction

Mathematical Process Standards.	
Knowledge and Skills Statement. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	VA—Process Standards moved to knowledge and skills statements
Apply mathematics to problems arising in everyday life, society and the workplace.	
Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, ~~and~~ evaluating the problem-solving process as well as the reasonableness of the solution.	
Select tools, including ~~such as~~ real objects, manipulatives, paper/pencil, ~~and~~ technology, as appropriate and ~~or~~ techniques, including ~~such as~~ mental math, estimation, and number sense, as appropriate to solve problems.	
Communicate mathematical ideas, reasoning, and their implications using multiple representations including ~~such as~~ symbols, diagrams, graphs, and language as appropriate.	
Create and use representations to organize, record, and communicate mathematical ideas.	
Analyze mathematical relationships to connect and communicate mathematical ideas.	
~~d~~Display, ~~E~~explain, ~~or~~ justify mathematical ideas and arguments using precise mathematical language in written or oral communications.	

Number and Operations.		KN
Knowledge and Skills Statement. The student applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system. The student is expected to:		
KN01	count verbally to 130 by ones ~~and tens,~~ beginning with any given number.	

	count backwards verbally by ones from any given number up to 20.	Askey
	count verbally to 130 by fives and tens.	Counting to 130 by tens beginning with any given number requires an understanding of place value that is still developing in Kindergarten. If students in grade 1 are expected to count a collection of objects by fives and tens, they must have previously learned the verbal skip counting sequence.
	use one-to-one correspondence to count up to 20 objects.	
	demonstrate conservation of number in that the number of objects is the same regardless of the arrangement or the order in which they were counted.	
	demonstrate cardinality by understanding that the last number name said tells the number of objects counted.	
	demonstrate hierarchical inclusion by understanding that each successive number name refers to a quantity that is one larger.	
	demonstrate perceptual subitizing by instantly recognizing the quantity of a small group of objects organized in a recognizable arrangement such as domino and dice patterns or ten-frames.	
	given a number in verbal or written form 1 to 20, count out that number of objects.	
KN02	~~represent the number of objects in a set at least up to 40 using spoken words and written numerals.~~	
KN03	determine the number before or after another number up to 20 without having to ~~start back at~~ count from 1 each time.	

KN04	represent the numerals up to ~~40~~ 20 by associating them to the number of elements in sets consisting of actual objects or pictures of objects, including counting out objects in groups of tens and ones such as one group of 10 and 3.	Askey If Kindergartners are expected to count, represent, compare, and create sets of objects to at least 40, there will be less time to spend on other important conceptual understandings that must be developed to support math concepts in 1st grade and beyond.
KN05	compare collections of up to ~~40~~ 20 objects using one-to-one correspondence.	Askey
KN06	use comparative language to describe two ~~compare~~ numbers between 1 and 10 presented as written numerals such as more than, greater than, less than, fewer than.	
KN07	generate a set using ~~objects~~ concrete and ~~or~~ pictorial models that represents a number that is more than, less than, ~~or~~ and equal to a given number, up to ~~40~~ 20.	Askey
KN08	Compose and decompose a given target number less than or equal to 5 and then less than or equal to 10 by producing ~~two~~ multiple sets of objects in a variety of ways that, when combined, contain exactly the target number.	KN08 and KN09 standards can effectively be combined.
KN09	~~decompose a given set of objects less than or equal to 10 into multiple sets in a variety of ways, and indicate the corresponding number pairs in each case (e.g., 8 can be decomposed into 4 and 4, 5 and 3, 6 and 2, and 7 and 1).~~	

Number and Operations.	**KN**
Knowledge and Skills Statement. The student applies mathematical process standards to develop an understanding of addition and subtraction situations in order to solve problems. The student is expected to:	
KN10	~~combine~~ join a set of 10 objects with another ~~number~~ set of objects to make a new ~~number~~ set ~~of size~~ between 10 ~~to~~ and 20 and ~~indicate the corresponding number relation (e.g.,~~ verbally describe the corresponding number relationship such as a set of 10 and a set of 1 can be joined ~~combined~~ to make 11~~)~~.	Kindergarten children need to see addition and subtraction represented by the actions of joining and separating.
KN11	separate a set of 10 to 20 objects into a group of 10 objects and some more~~. (e.g.,~~ such as 18 can be separated into a set of 10 and a set of 8~~)~~.	

KN12	~~solve~~ model mathematical and real-world problems involving adding ~~or~~ and subtracting within ~~20~~ 10 using ~~objects~~ concrete and pictorial models. These problems should include unknowns in all positions such as determining the whole ~~sum~~ when the parts are given ~~two addends are given~~ and determining the missing part ~~minuend~~ when the ~~difference and subtrahend~~ whole and one part are given.	
KN13	explain the ~~solution process~~ strategies used to solve problems involving adding ~~or~~ and subtracting within ~~20~~ 10 using spoken words, ~~objects~~, concrete and pictorial models, and number sentences with guidance.	

Two-Dimensional and Three-Dimensional Figures.		**KG**
Knowledge and Skills Statement The student applies mathematical process standards to analyze attributes of two-dimensional geometric figures to develop generalizations about their properties. The student is expected to:		
KG01	identify two-dimensional figures ~~objects (the shape of~~ including circles, triangles, rectangles~~,~~ and squares as special rectangles. ~~rhombuses, and hexagons) and three-dimensional objects (the shape of cylinders, cones, spheres, and cubes) found in the real world.~~	
	identify two-dimensional figures in the real world.	
KG02	identify two-dimensional components of three-dimensional objects such ~~shapes (e.g.,~~ as the face of a tissue box ~~cube~~ is a rectangle ~~square~~).	
KG03	identify attributes of two-dimensional figures ~~shapes~~ using informal and formal geometric language interchangeably ~~(e.g.,~~ such as number of corners~~, (~~vertices~~)~~, number of sides~~, and angles).~~	
KG04	~~identify attributes of three-dimensional shapes (e.g., number of corners (vertices), number of edges, and sides and number of faces).~~	Recommended by geometry vertical team.
KG05	classify and sort two-dimensional ~~shapes~~ figures ~~as~~ including a variety of circles, triangles, rectangles, ~~including~~ squares as special rectangles, and other non-standard or irregular figures ~~and rhombuses; or hexagons~~ regardless of orientation or size.	
KG06	~~classify three-dimensional shapes as cylinders, cones, spheres, or cubes regardless of orientation or size.~~	Recommended by geometry vertical team.
KG07	~~compose~~ create two-dimensional figures ~~shapes and three-dimensional shapes~~ using materials ~~(e.g.,~~ such as popsicle sticks, straws, ~~molding~~ modeling clay, etc.~~)~~ or drawings.	
KG08	describe the position of one or more ~~shapes~~ objects in relation to another ~~shape~~ object using words such as "to the left of", "to the right of", "above," "below," "beside," "between," "in front of," and "in back of", and others as appropriate.	

Measurement and Data.		**KM**
Knowledge and Skills Statement. The student applies mathematical process standards to directly compare measureable attributes. The student is expected to:		
KM01	give an example of a measurable attribute of a given object ~~(~~including length, capacity, weight, and temperature~~)~~.	
KM02	use comparative language such as longer/taller/wider, shorter; holds more, holds less; heavier, lighter; colder, warmer to directly compare two objects ~~directly~~ with a common measurable attribute of ~~(~~length, capacity, weight, and temperature~~)~~ ~~using language such as "more" and "less"~~.	
Measurement and Data.		**KM**
Knowledge and Skills Statement. The student applies mathematical process standards to collect and organize data to make it useful for interpreting information. The student is expected to:		
KM03	classify and sort a set of objects including coins into categories according to an attribute ~~(e.g.,~~ such as number of sides, corners, ~~angles,~~ color, shape, size, ~~first letter in name~~, etc.) and resort the same set according to a different attribute.	Recommended by geometry vertical team to use angles in grade 3. The name of an object is not one of its attributes.
KM04	~~count the number of objects in a category or subcategory, summarize the data into a picture graphs and use the picture graph to answer questions about the data (e.g., "Which shape do we have the most of?").~~ Collect and sort information into two or three categories, and construct real object graphs or picture graphs in order to explain what the graph means and generate and answer comparative questions using information from the graph.	

Grade 1

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In Grade 1, instructional time should focus on three critical areas: (I) understanding and applying place value; (II) solving problems involving addition and subtraction; (III) composing and decomposing two-dimensional and three-dimensional figures.

(I) Students use relationships within the numeration system to understand the sequential order of the counting numbers and their relative magnitude.

(II) Students extend their use of addition and subtraction beyond the actions of joining and separating to include comparing and combining. Students use properties of operations and the relationship between addition and subtraction to solve problems. By comparing a variety of solution strategies, children use efficient, accurate and generalizable methods to perform operations.

(III) Student use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes. Students are able to identify, name, and describe basic two-dimensional shapes as well as three-dimensional shapes.

Grade 1

Mathematical Process Standards Grade 1		
I.	Apply mathematics to problems arising in everyday life, society and the workplace.	VA—Process Standards moved to knowledge and skills statements
II.	Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution and evaluating the problem-solving process.	
III.	Select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.	
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V.	Create and use representations to organize, record, and communicate mathematical ideas.	
VI.	Explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications.	

Grade 1 Focal Areas		
Number and Operations	▲	Understanding and applying place value
Number and Operations	●	Solving problems involving addition and subtraction
Two-Dimensional and Three-Dimensional Figures	■	Composing and decomposing two-dimensional and three-dimensional

Supporting Topics for the Focal Areas in Grade 1 and Grade 2		
Number and Operations	▲	Determining 10 more or 10 less
	▲●	Comparing and ordering whole numbers up to 100
	▲●	Connecting properties and operations
	▲●	Connecting addition and subtraction
	▲●	Fluently producing addition and related subtraction facts with sums to 10 and differences from 10
Expressions, Equations, and Relationships	●	Representing problems involving addition and subtraction
Two-Dimensional and Three-Dimensional Figures	■	Distinguishing between attributes of figures
Measurement and Data	▲●■	Representing data
Color and symbol shows the connection between Focal Areas and Supporting Topics. + Indicates topic supports Focal Area in Grade 2		

Grade 1

Introduction

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Number and Operations.		1N
Knowledge and Skills Statement The student applies mathematical process standards to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value. The student is expected to:		
1N01	skip count verbally by twos ~~and fives to determine the total number of objects up to 130. in a set (objects include pennies and nickels).~~	Move to "Expressions, equations, and relationships".
	Verbally count backwards from any given number up to 100.	Richard Askey
	demonstrate conceptual subitizing by verbally labeling structured arrangements up to 20 shown only briefly as groups, such as seeing four fives as five, ten, fifteen, twenty.	Clements' Learning Trajectories

1N02	use concrete and pictorial models to compose and decompose ~~the value of a numeral~~ numbers up to 999 ~~100~~ as a sum of so many hundreds, so many tens and so many ones, in more than one way. ~~using objects and pictorial models. For example, 64 can be represented as 6 tens, and 4 ones, or as 5 tens, and 14 ones. (representations may be bundles of an object or pictures of bundles).~~	The original draft used the number 100. First grade students need to compose and decompose greater numbers of objects to prepare them for more abstract representations in grades 2 and beyond. Professional development needs to emphasize examples such as, 364 can be represented as 3 hundreds, 6 tens, and 4 ones, or as 2 hundreds, 15 tens, and 14 ones.
1N03	use objects, pictures, expanded and standard forms to represent ~~a two-digit number~~ numbers up to ~~two~~ 999. ~~as the sum of the values represented by the digits in the combined value of tens and ones using objects, pictures , expanded notation, and numbers. For example, 93 is the sum of 9 tens and 3 ones.~~	Wording was clarified without sacrificing the mathematical precision.
1N04	~~generate a two-digit number that is greater than, less than, or equal to a given whole number that is greater than 10 and less than 99~~. generate a number that is greater than or less than a given whole number up to 999.	Wording was clarified without sacrificing the mathematical precision.
1N05	~~compare and order whole numbers up to 100~~ . use place value to compare whole numbers to 999 using comparative language such as more than, greater than, less than, fewer than.	Wording was clarified without sacrificing the mathematical precision.
	order whole numbers to 999 using place value and open number lines.	NCTM Focus in Grade 2 (p 52-54), TXRCFP (p 16), Clements Early Childhood Mathematics Education Research (p 92) PD needs to include open number lines.
1N06	~~represent the comparison of two numbers to 100 using the symbols >, <, or =.~~	Research suggests that first grade students are learning quantities concretely to provide support for the abstract comparative symbols used in grades 2 and beyond.

Number and Operations.	**1N**
Knowledge and Skills Statement. The student applies mathematical process standards to develop and use strategies for whole number addition and subtraction computations in order to solve problems. The student is expected to:	

1N07	~~determine the difference of between two multiples of 10 in the range from 10-90 using objects and pictures.~~	Weilmuenster page 5
1N08	~~generate a two-digit number that is 10 more or 10 less than a given number.~~	Moved to Expressions, Equations, and Relationships for consistency with Grade 2.
1N09	use concrete and pictorial models to determine the sum of a multiple of ten such as 50 and a one-digit number in mathematical and real-world problems up to 100. ~~determine the sum of a two-digit number and one-digit number in mathematical and real-world problems, within 100, using concrete and visual models for solving addition problem situations.~~	Weilmuenster page 5
1N10	solve mathematical and real-world problems involving combining with sums to 20 and unknowns in all positions, using objects and pictorial models.	
1N11	solve mathematical and real-world problems involving separating with differences from 20 and unknowns in all positions using objects and pictorial models.	
1N12	solve mathematical and real-world problems involving comparisons within 20 and unknowns in all positions using objects and pictorial models.	
1N13	~~solve mathematical and real-world problems involving sets to 20 and unknowns in all positions using objects and pictorial models.~~	Repetition of 10, 11, and 12
1N14	fluently ~~produce addition and subtraction facts~~ apply basic fact strategies to add and subtract with sums to 10 and differences from 10~~ with fluency~~.	Redundant
1N15	explain strategies used to solve ~~the solution to~~ addition and subtraction problems ~~involving adding or subtracting within~~ up to 20 using spoken words, objects, pictorial models, and number sentences.	
1N16	generate and solve problem situations when given a mathematical number sentence involving adding or subtracting of whole numbers within 20.	
Expressions, Equations and Relationships.		**1A**
Knowledge and Skills Statement. The student applies mathematical process standards to identify coins, their values and the relationships among them in order to recognize the need for monetary transactions. The student is expected to:		
	identify individual coins including pennies, nickels, dimes, and quarters by name and value and describe the relationships between them. Use a number and the cent symbol to describe the value of a coin.	Financial Literacy
	use relationships to skip count by twos,~~ and~~ fives and tens to determine the total number of objects ~~(~~up to 130~~)~~ in a set, ~~(objects include~~ including pennies,~~ and~~ nickels and dimes~~)~~.	

Expressions, Equations and Relationships.		**1A**
Knowledge and Skills Statement. The student applies mathematical process standards to identify and apply number patterns within properties of numbers and operations in order to describe relationships. The student is expected to:		
	determine whether a number up to 10 objects in a set is even or odd by pairing objects or counting them by twos.	To build the foundation for numerical fluency, it is important for first graders to develop this understanding.
	use relationships to determine the number that is 10 more or 10 less than a given number up to 999.	
1A01	represent mathematical and real-world problems involving addition and subtraction of whole numbers to 20 using concrete and pictorial models and number sentences ~~(equations)~~.	
1A02	understand the meaning of the equal sign and determine if a number sentence for addition or subtraction is true.	
1A03	determine the unknown whole number in an addition or subtraction equation relating three whole numbers when the unknown may be any one of the three terms in the equation. ~~For example, the value 7 for [] makes 12 + [] = 19 a true equation.~~	Include fact families in PD.
	identify relationships between addition and subtraction sentences.	Adding It Up Clements

Two-Dimensional and Three-Dimensional Figures.		**1G**
Knowledge and Skills Statement. The student applies mathematical process standards to analyze attributes of two- and three-dimensional geometric figures to develop generalizations about their properties. The student is expected to:		
	classify and sort two-dimensional figures including regular and irregular shapes based on attributes using informal geometric language.	
1G02	distinguish between attributes that define a two-dimensional or three-dimensional ~~shape~~ figure ~~(e.g.,~~ such as a closed figure with 3 sides is a triangle, a solid with rectangular faces is a rectangular prism~~)~~ and an attribute that does not define the shape ~~(e.g.,~~ such as orientation or color~~)~~.	
1G01	~~draw~~ create two-dimensional figures including circles, ~~half-circles, quarter-circles,~~ triangles, rectangles, squares as special rectangles, rhombuses, and hexagons.	Weilmuenster page 5

	identify two-dimensional figures including triangles, rectangles, squares as special rectangles, rhombuses, and hexagons and describe their attributes.	
	identify three-dimensional figures including spheres, cones, cylinders, rectangular prisms including cubes, and triangular prisms, and describe their attributes.	
1G03	compose two-dimensional shapes ~~or three-dimensional shapes~~ by joining two, three, or four shapes, to produce a target shape in more than one way if possible.	Introduction to figures by name is important prerequisite for grade 2 concepts.
	partition two-dimensional figures such as circles and rectangles into two and four fair shares or equal parts and describe the parts using words such as halves, half of, fourths, or quarters.	Siebert and Gaskin, "Creating, Naming, & Justifying Fractions", Teaching Children Mathematics, April 2006 Watanabe, "Representations in Teaching & Learning Fractions", Teaching Children Mathematics, April 2002
	justify that fractional parts are halves or fourths by constructing examples and non-examples.	Witherspoon. "Fractions: In Search of a Meaning", Arithmetic Teacher , April 1993.

Measurement and Data.		**1M**
Knowledge and Skills Statement. The student applies mathematical process standards to select and use units to describe length and time. The student is expected to:		
	use measuring tools such as adding machine tape, ribbon, or yarn to measure the length of objects to reinforce the continuous nature of linear measurement.	Clements & Sarana, Engaging Young Children in Mathematics, page 301
1M01	~~illustrate~~ demonstrate that the length of an object is the number of same-size units of length that, when laid end-to-end ~~(~~with no gaps or overlaps~~)~~, reach from one end of the object to the other, assuming this is possible.	
1M02	~~generalize that when two different units are used to measure the same length, one will need a greater number of smaller units than longer units to measure the length.~~ Measure the same object/distance with units of two different lengths and describe how and why the measurements differ.	Moved to grade 2.
1M03	describe a length to the nearest whole unit ~~write a~~ using a number and a unit ~~to~~ such as 5 Popsicle® sticks.	

1M04	determine the time in hours~~, and~~ half hours and five minute intervals using analog and digital clocks.	
Measurement and Data.		**1M**
Knowledge and Skills Statement. The student applies mathematical process standards to organize data to make it useful for interpreting information and solving problems. The student is expected to:		
1M05	classify and sort a set of objects or data into up to three categories ~~or subcategories~~ and use numbers to describe and compare these categories.	
1M06	~~summarize a data set, with up to four categories, using a frequency table or a picture graph.~~ Record a set of data with up to three categories using a tally chart, bar-type graph, or picture graph.	Weilmuenster page 4 For consistency, stay with three categories.
1M07	~~generate questions about categories of objects or data and determine solutions to these questions (e.g., the number in each category and how many more or less are in one category than in another).~~ Draw conclusions, generate and answer comparative questions using information organized in picture graphs and bar-type graphs.	

Grade 2

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In Grade 2, instructional time should focus on three critical areas: (I) making comparisons within the Base 10 numeration system; (II) solving problems with addition and subtraction within 100; (III) building foundations for multiplication

(I) Students develop an understanding of the Base-10 numeration system and place value concepts. Their understanding of base-10 numeration includes ideas of counting in units and multiples of thousands, hundreds, tens and ones, as well as a grasp of number relationships, which they demonstrate in a number of ways.

(II) Students identify situations in which addition and subtraction are useful to solve problems. Students develop a variety of strategies to use efficient, accurate, and generalizable methods to add and subtract multi-digit whole numbers.

(III) Students use the relationship between skip counting and equal groups of objects to represent the addition or subtraction of equivalent sets. This builds a strong foundation for multiplication and division.

Grade 2

~~Mathematical Process Standards Grade 2~~		
~~I.~~	~~Apply mathematics to problems arising in everyday life, society and the workplace.~~	VA—Process Standards moved to knowledge and skills statements
~~II.~~	~~Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution and evaluating the problem-solving process.~~	
~~III.~~	~~Select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.~~	
~~IV.~~	~~Communicate mathematical ideas, reasoning, and their implications using symbols, diagrams, graphs, and language.~~	
~~V.~~	~~Create and use representations to organize, record, and communicate mathematical ideas.~~	
~~VI.~~	~~Explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications.~~	

Grade 2 Focal Areas		
Number and Operations	▲	Making comparisons within Base 10
Number and Operations	●	Solving problems with addition and subtraction within 100
Number and Operations	■	Building foundations for multiplication

Supporting Topics for the Focal Areas in Grade 2 and Grade 3		
Number and Operations	▲	Applying place value and counting
	+	Building foundations for fractions
	●■	Fluently producing addition facts and related subtraction facts
Expressions, Equations, and Relationships	●■	Using multiple representations of problem situations
	●	Determining missing values in number sentences
Two-Dimensional and Three-Dimensional Figures	+	Identifying and classifying 2D and 3D figures
	■	Composing 2D and 3D figures out of unit measures
	■	Decomposing 2D figures
Measurement and Data	+	Measuring lengths and time
	●	Solving problems involving length
	■	Representing location on a number line
	●■	Representing and interpreting data
Color and symbol shows the connection between Focal Areas and Supporting Topics. + Indicates topic supports Focal Area in Grade 2		

Grade 2

Introduction

In Grade 2, instructional time should focus on three critical areas: (I) making comparisons within the Base 10 numeration system; (II) solving problems with addition and subtraction within 100; (III) building foundations for multiplication

(IV) Students develop an understanding of the Base-10 numeration system and place value concepts. Their understanding of base-10 numeration includes ideas of counting in units and multiples of thousands, hundreds, tens and ones, as well as a grasp of number relationships, which they demonstrate in a number of ways.

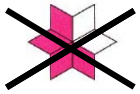
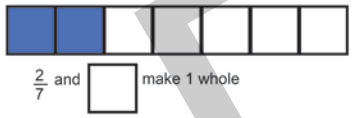
(V) Students identify situations in which addition and subtraction are useful to solve problems. Students develop a variety of strategies to use efficient, accurate, and generalizable methods to add and subtract multi-digit whole numbers.

(VI) Students use the relationship between skip counting and equal groups of objects to represent the addition or subtraction of equivalent sets. This builds a strong foundation for multiplication and division.

Mathematical Process Standards.		
Knowledge and Skills Statement. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:		VA—Process Standards moved to knowledge and skills statements
	Apply mathematics to problems arising in everyday life, society and the workplace.	
	Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, ~~and~~ evaluating the problem-solving process as well as the reasonableness of the solution.	
	Select tools, including ~~such as~~ real objects, manipulatives, paper/pencil, ~~and~~ technology, as appropriate and ~~or~~ techniques, including ~~such as~~ mental math, estimation, and number sense, as appropriate to solve problems.	
	Communicate mathematical ideas, reasoning, and their implications using multiple representations including ~~such as~~ symbols, diagrams, graphs, and language as appropriate.	
	Create and use representations to organize, record, and communicate mathematical ideas.	
	Analyze mathematical relationships to connect and communicate mathematical ideas.	
	~~d~~Display, ~~E~~explain, ~~or~~ justify mathematical ideas and arguments using precise mathematical language in written or oral communications.	

Number and Operations.		**2N**
Knowledge and Skills Statement. The student applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value. The student is expected to:		
2N01	use concrete and pictorial models to compose and decompose ~~the value of a numeral~~ numbers up to 9,999 ~~1000~~ as a sum of so many hundreds, so many tens and so many ones, in more than one way. ~~using objects and pictorial models. For example, 364 can be represented as 3 hundreds, 6 tens, and 4 ones, or as 2 hundreds, 15 tens, and 14 ones. (representations may be bundles of an object or pictures of bundles).~~	The original draft used the number 1,000. At third grade, numbers move from being adjectives requiring concrete objects to being nouns representing quantities abstractly. Therefore, students need more concrete experience with the thousands period prior to moving to third grade. Professional development needs to emphasize examples such as, 364 can be represented as 3 hundreds, 6 tens, and 4 ones, or as 2 hundreds, 15 tens, and 14 ones.
	demonstrate conceptual subitizing by verbally labeling structured arrangements shown only briefly using groups, skip counting, and place value such as seeing three groups of ten and a four as ten, twenty, thirty, thirty-four. (Conceptual Subitizing)	Clements' Learning Trajectories
2N02	Use standard, written, and expanded forms to represent up to ~~a three~~ 9,999. ~~as the sum of the values represented by the digits in the combined value of hundreds, tens, and ones places using objects, expanded notation, and numbers. For example, 493 is the sum of 4 hundreds, 9 tens and 3 ones.~~	Language in standard clarified.
2N03	~~generate a three-digit number that is greater than, less than, or equal to a given whole number that is greater than 100 and less than 999~~. generate a number that is greater than or less than a given whole number up to 9,999.	Language in standard clarified.
2N04	~~compare and order whole numbers up to 1,000~~ . use place value to compare whole numbers to 9,999 using words, numbers, and symbols (>, <, or =).	It is recommended that students not order more than four whole numbers.
	order whole numbers to 9,999 using place value and open number lines.	NCTM Focus in Grade 2 (p 52-54), TXRCFP (p 16), Clements Early Childhood Mathematics Education Research (p 92) PD needs to include open number lines.

~~2N05~~	~~represent the comparison of two numbers to 1,000 using the symbols >, <, or =.~~	NCTM Focus in Grade 2 (p 52-54), TXRCFP (p 16), Clements Early Childhood Mathematics Education

Number and Operations.		**2N**
Knowledge and Skills Statement. The student applies mathematical process standards to recognize and represent fractional units and communicates how they are used to name parts of a whole. The student is expected to:		
2N06	partition objects such as strips, lines, regular polygons and circles into equal parts and name the parts up to eighths. Recognize that the more fractional parts used to make a whole, the smaller the part.  ~~decompose a strip diagram or regular polygon into equal parts using objects and pictorial representations.~~	Clements and Sarama. Engaging Young Children in Mathematics page 301. Siebert and Gaskin, "Creating, Naming, & Justifying Fractions", Teaching Children Mathematics,
2N07	identify and name one part of an equipartitioned whole as a unit fraction ~~1/b (where b is a non-zero whole number)~~ using strips ~~diagrams~~ and area models that include regular polygons.	Avoiding the use of symbolic fraction notations makes a stronger introduction to fractions.
2N08	use concrete models to count fractional parts using words such as one-third, two-thirds, three-thirds, four-thirds or one and one-third and recognize that it takes three thirds to equal one whole. ~~determine the missing value in a number statement where two fractions with like denominators form one whole, represented with a strip diagram. (e.g., 2/7 + ☐ = 7/7. A strip diagram is separated into 7 equal parts. Two of the parts are shaded blue, and the remaining parts are shaded a second color.)~~  	Watanabe, "Representations in Teaching & Learning Fractions", Teaching Children Mathematics, April 2002 To provide the conceptual understanding needed by third graders to manipulate fractions using pictures and fraction notation, and as a transition between recognizing that fractions are fair shares or equal pieces called halves or fourths (from 1st grade), we recommend that this student expectation move beyond 2nd grade to be replaced by the proposed SE.
	Justify that fractional parts are halves and fourths by constructing examples and non-examples.	Watanabe, "Representations in Teaching & Learning Fractions", Teaching Children Mathematics, April

Number and Operations.		
Knowledge and Skills Statement. The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve addition and subtraction problems with efficiency and accuracy. The student is expected to:		
2N09	~~determine the number that is and 10 or 100 more or less than a given number between 100 and 900.~~	Moved to Expressions, Equations and Relationships.
2N10	fluently ~~produce addition and subtraction facts~~ apply basic fact strategies to add and subtract with sums to 20 and differences from 20 ~~with fluency~~.	From Weilmuenster page 8.
2N11	Solve with fluency one-step ~~and multi-step~~ mathematical and real-world problems involving addition and subtraction of two-digit numbers ~~within 100~~ using properties of operations, the relationship between addition and subtraction , and a variety of strategies based on place value with and without objects, open number lines, and pictorial models. ~~properties of operations, and the relationship between addition and subtraction with fluency~~.	
2N12	solve multi-step mathematical and real-world problems involving addition and subtraction of two-digit numbers ~~within 1,000~~ using properties of operations, the relationship between addition and subtraction , and a variety of strategies based on place value with and without objects, open number lines, and pictorial models. ~~properties of operations, and the relationship between addition and subtraction~~.	
2N13	generate and solve problem situations for a given mathematical number sentence involving adding or subtracting of whole numbers within 100 ~~1,000~~.	
	solve mathematical and real-world problems with unknowns in all positions.	
2N14	~~Determine whether a number (up to 40) of objects in a set is even or odd.~~	Moved to Expressions, Equations, and Relationships.

Number and Operations.		
Knowledge and Skills Statement. The student applies mathematical process standards to determine the value of coins in order to solve monetary transactions. The student is expected to:		
	determine the value of a collection of coins up to one dollar.	Financial Literacy requirement
	describe how the cent symbol, dollar symbol, and the decimal point are used to name the value of a collection of coins.	Financial Literacy requirement

Number and Operations.		2N
Knowledge and Skills Statement. The student applies mathematical process standards to connect repeated addition and subtraction to multiplication and division situations that involve equal groupings and shares. The student is expected to:		
2N15	~~Arrange a given number of objects into rectangular arrays with up to 5 rows and up to 5 columns.~~ Model, create, and describe multiplication situations in which equivalent sets of concrete objects are joined.	Weilmuenster, page 7.
2N16	~~determine the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns.~~ model, create and describe division situations in which a set of concrete objects is separated into equivalent sets.	

Expressions, Equations and Relationships.		2A
Knowledge and Skills Statement. The student applies mathematical process standards to identify and apply number patterns within properties of numbers and operations in order to describe relationships. The student is expected to:		
	skip count by twos, fives and tens to determine the total number of objects up to 130 in a set objects include pennies, nickels and dimes.	
	use relationships to determine whether a number up to 40 is even or odd.	Rath, page 14.
	use relationships to determine the number that is ~~and~~ 10 or 100 more or less than a given number ~~between 100 and~~ up to 9,999.	Moved from Number because it requires understanding of numerical relationships.
2A01	~~represent mathematical and real-world problems involving addition and subtraction of whole numbers to 100 using strip diagrams and number sentences (equations).~~	Duplicate of 2N11 and 2N12 Weilmuenster page 7
2A02	~~represent mathematical and real-world problems for multiplication to a product of 25 using arrays, strip diagrams, and number sentences (equations).~~	Replaced with standard using equal groups of objects to introduce multiplication & division.
2A03	determine the unknown whole number in an addition or subtraction equation relating three whole numbers when the unknown may be any one of the three terms in the equation. ~~For example, the value 27 for [] makes 12 + [] = 39 a true equation.~~	Removed example.
Two-Dimensional and Three-Dimensional Figures.		**2G**
Knowledge and Skills Statement. The student applies mathematical process standards to analyze attributes of two- and three-dimensional geometric figures to develop generalizations about their properties. The student is expected to:		

2G01	create ~~build and draw~~ two-dimensional shapes based on given attributes including number of sides ~~(less than or equal to six)~~ or vertices.	Language in standard clarified.
2G02	identify attributes of ~~two-dimensional shapes including~~ a quadrilateral, ~~parallelograms~~, pentagon~~s~~, and octagon~~s~~.	Language in standard clarified.
2G03	classify and sort three-dimensional shapes ~~(~~including cones, cylinders, spheres, triangular and rectangular prisms including cubes~~)~~ based on attributes using formal geometric language ~~(e.g., number of faces, edges, or vertices)~~.	Language in standard clarified.
2G04	compose two-dimensional shapes and three-dimensional shapes with given properties or attributes ~~e.g.,~~ such as build a rectangle out of unit squares; build a rectangular prism out of unit cubes~~)~~.	Language in standard clarified.
2G05	decompose two-dimensional shapes ~~(e.g.,~~ such as cut out a square from this rectangle; divide this shape in half; partition a rectangle into identical triangles~~)~~.	Language in standard clarified.
2G06	~~illustrate the area of a rectangle with whole number side lengths as the number of unit squares (n square units) needed to cover it with no gaps or overlaps. A "unit square" is a square with side length of 1 unit having "one square unit of area".~~	Moved to Measurement.

Measurement and Data.		**2M**
Knowledge and Skills Statement. The student applies mathematical process standards to select and use units to describe length, area, and time. The student is expected to:		
2M01	~~illustrate~~ find the length of objects using concrete models for standard units of length such as inch tiles and centimeter cubes.	Language in standard clarified.
	Describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object such as the longer the unit, the fewer needed; the shorter the unit, the more needed.	Weilmuenster, page 7
2M02	determine the length of an object using rulers, yardsticks, meter sticks, or measuring tapes to the nearest ~~marked~~ half unit.	
2M03	determine a solution to mathematical and real-world problems involving length, including estimating lengths and using length as a model for addition and subtraction.	
	use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps and count to find the total number of square units. Describe the measurement using a number and the unit such as 24 square units. ~~illustrate the area of a rectangle with whole number side lengths as the number of unit squares (n square units) needed to cover it with no gaps or overlaps. A "unit square" is a square with side length of 1 unit having "one square unit of area".~~	Moved from Geometry because it is an introduction to area measurement. Language in standard clarified.

2M04	~~determine~~ read and write time to the nearest minute using analog and digital clocks and distinguish between a.m. and p.m.	Language in standard clarified.
2M05	represent whole numbers as distances from ~~zero~~ any given location on a ~~number line~~ linear model.	Language in standard clarified.
2M06	represent the point on a number line that correspond to a given whole number.	
2M07	determine the corresponding whole number of a specified point on a number line.	

Measurement and Data.		**2M**
Knowledge and Skills Statement. The student applies mathematical process standards to organize data to make it useful for interpreting information and solving problems. The student is expected to:		
2M08	explain that the length of a bar in a bar-type graph or the number of pictures in a picture graph represents the number of data points for a given category.	
2M09	organize a collection of data ~~summarize a data set,~~ with up to four categories, using a tally chart ~~frequency table~~, ~~a dot plot,~~ a picture graph, or a bar-type graph with intervals of one ~~with the vertical axis scaled in increments of one~~.	Language in standard clarified.
2M10	Write and solve one-step mathematical and real-world problems involving addition or subtraction using categorical data represented with a tally chart, ~~frequency table~~, ~~a dot plot~~, a picture graph, or a bar-type graph with ~~unit~~ intervals of one.	Language in standard clarified.

Grade 3

Mathematical Process Standards Grade 3		
I.	Apply mathematics to problems arising in everyday life, society and the workplace.	VA—Process Standards moved to knowledge and skills statements
II.	Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution and evaluating the problem-solving process.	
III.	Select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.	
IV.	Communicate mathematical ideas, reasoning, and their implications using symbols, diagrams, graphs, and language.	
V.	Create and use representations to organize, record, and communicate mathematical ideas.	
VI.	Explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications.	

Grade 3 Focal Areas		
Number and Operations	▲	Solving multi-step addition and subtraction problems with whole numbers within 1000
Number and Operations	●	Solving problems with multiplication and division within 100
Number and Operations	■	Understanding and representing fractions as numbers and equivalent fractions

Supporting Topics for the Focal Areas in Grade 3 and Grade 4		
Number and Operations	▲	Applying place value
	▲	Comparing and ordering whole numbers
	■	Representing points on a number line that correspond to a given fraction
	▲■	Connecting multiplication and division
Expressions, Equations, and Relationships	●■	Using multiple representations of problem situations
	▲●■	Determining missing values in number sentences
	▲	Representing real-world relationships using number pairs in a table and verbal description
Two-Dimensional and Three-Dimensional Figures	▲●	Relating area to multiplication and to addition
	+	Identifying and classifying 2D according to common attributes
	+	Decomposing composite figures formed by rectangles to determine area
Measurement and Data	▲	Determining perimeter of polygons
	▲■	Solving problems involving time
	▲	Measuring liquid volume (capacity)
	■	Representing location on a number line
	▲●■	Representing and interpreting data
Color and symbol shows the connection between Focal Areas and Supporting Topics. + Indicates topic supports Focal Area in Grade 4		

Grade 3

Introduction

Mathematical Process Standards		
Knowledge and Skills Statement. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:		VA—Process Standards moved to knowledge and skills statements
	Apply mathematics to problems arising in everyday life, society and the workplace.	
	Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, ~~and~~ evaluating the problem-solving process as well as the reasonableness of the solution.	
	Select tools, including ~~such as~~ real objects, manipulatives, paper/pencil, ~~and~~ technology, as appropriate and ~~or~~ techniques, including ~~such as~~ mental math, estimation, and number sense, as appropriate to solve problems.	
	Communicate mathematical ideas, reasoning, and their implications using multiple representations including ~~such as~~ symbols, diagrams, graphs, and language as appropriate.	
	Create and use representations to organize, record, and communicate mathematical ideas.	
	Analyze mathematical relationships to connect and communicate mathematical ideas.	
	~~d~~Display, ~~E~~explain, ~~or~~ justify mathematical ideas and arguments using precise mathematical language in written or oral communications.	

Number and Operations.		3N
Knowledge and Skills Statement The student is expected to:		
3N01	compose and decompose the ~~represent~~ value of a numeral to 10,000 as a sum of so many thousands, so many hundreds, so many tens, and so many ones, in more than one way using objects and pictorial models that address the notion of bundling.	ER—Capraro-1, Askey-18
3N01.5	explain the mathematical relationships found in the base ten place value system through the 10, 000 place.	ER—Capraro-1, Askey-18

3N02	represent the value of the digit in whole numbers through 10,000 using expanded notation and numerals. For example, for the number 4,093, the 4 in the thousands places is 4,000; the 9 in the tens place is 90; and the 3 in the ones place is three; and 4,093 is the sum of 4 thousands, 0 hundreds, 9 tens, and 3 ones.	
3N02.5	represent a number on a number line as being between two consecutive multiples of 10 or 100 or 1000 and use words to describe relative size of numbers such as closer to, is about, or is nearly.	*Reference: Minnesota Standards 1. 1.1.6*
3N03	round whole numbers through 10,000 to the nearest 10, 100, or 1,000 .	clarification
3N04	compare and order whole numbers up to 10,000 and represent comparisons using the symbols >, <, or =.	ER—Capraro-2
~~3N05~~	~~represent the comparison of two numbers to 10,000 using the symbols >, <, or =.~~	Moved to 3N04
3N06	represent fractions greater than zero in mathematical and real-world problems using a variety of objects and pictorial models, including strip diagrams and number lines with denominators of 2, 3, 4, 6, and 8.	ER—Schmid-2 and Weilmuenster-14
~~3N07~~	~~represent the point on a number line that corresponds to a given fraction greater than 0.~~	Moved the concept to measurement 3M07
3N08	explain that the unit fraction, 1/*b* represents the quantity formed by one part of a whole that has been partitioned into *b* equal parts where *b* is a non-zero whole number.	ER—Weilmuenster-10 clarification
3N09	explain that *a/b*, where *a* is a whole number less than or equal to b and *b* is a non-zero whole number, represents the quantity formed by *a* parts of size *1/b*, such as 2/3= 1/3 + 1/3	ER—Schmid-3, Weilmuenster-10 clarification
3N9.5	Solve problems involving partitioning an object or a set of objects among two or more recipients using pictorial representations with denominators of 2, 3, 4, 6, and 8, such as two children share 5 cookies.	Weilmuenster-10 Resource the IES Fraction Guide
3N10	represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models including number lines.	ER—Schmid-2 and Weilmuenster-14
3N11	explain that two fractions are equivalent if and only if they are both represented by the same point on the number line or represent the same portion of a same size whole for an area model.	
3N12	compare two fractions having the same numerator or denominator in mathematical and real-world problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models, including strip diagrams and number lines, ~~(fractions being compared should have the same numerator or the same denominator).~~ such as compare the size of pieces when sharing a candy bar equally among 4 people or equally among 3 people.	ER—Schmid-2 and Weilmuenster-14

3N12.5	generate a number that is 100 or 1000 more or less than a given number up to 9000 .	(will align to 2nd prerequisite for skill rounding and fluency in this number range)
3N13	solve one-step and multi-step mathematical and real-world problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction with fluency.	
3N14	determine the total number of objects when equally-sized groups of objects are combined or arranged in arrays up to 10 by 10.	VA & MV
3N15	determine products of up to a 2-digit number by a one-digit number using strategies based on an understanding of the properties of operations, such as ~~(e.g.,~~ 5 x 8 = 40, so 8 x 5 = 40 ; 2 x 3 x 4 = (2 x 3) x 4 = 6 x 4 = 24; 6 x 8 = 6 x (5+3) =6 x 5 + 6 x 3 = 30 + 18 = 48~~)~~.	VA & MV
3N16	determine the product of a one-digit whole number and multiples of 10 in the range 10-90 ~~(e.g. 8x90, 7x60)~~ using strategies based on place value and the understanding of the properties of operations.	
3N17	determine the number of objects in each group when a set of objects ~~are~~ is partitioned into equal shares or a set of objects ~~are~~ is shared equally ~~(e.g., the number of objects in each share when 28 objects are partitioned equally into 7 shares, or as a number of shares when 28 objects are partitioned into equal shares with 7 objects each)~~.	Grammatical error (are/is)
3N18	determine a quotient using the relationship between multiplication and division, such as ~~(e.g.,~~ the quotient 40÷8 can be found by determining what makes 40 when multiplied by 8~~)~~.	
~~3N19~~	~~determine the unknown whole number in multiplication and division equations relating three whole numbers, (e.g., 8x?=24, 5=?÷3, 7x6=?).~~	This is 3A04.
3N20	~~produce with fluency multiplication and division facts with products to 100 and dividends from 100.~~ Fluently apply basic fact strategies to multiply up to 10 by 10 and the corresponding division facts.	ER
3N21	solve one-step and multi-step mathematical and real-world problems involving multiplication and division within 100 using strategies based on objects, pictorial models ~~(~~including arrays, area models, and equal groups~~)~~, properties of operations, or recall of facts.	
~~**3N22**~~	~~solve one-step and multi-step mathematical and real-world problems involving addition, subtraction, multiplication, or division. (Problems may include operations with whole-number measures of length, capacity, or mass.)~~	Covered in 3N13 and 3N21

Expressions, Equations and Relationships.	**3A**

Knowledge and Skills Statement The student is expected to:		
3A01	represent and solve one- and two-step mathematical and real-world problems involving ~~single and~~ addition and subtraction of whole numbers to 1000 using ~~strip diagrams~~ pictorial models, such as strip diagrams and number lines, and number sentences (equations).	Combination of ER and committee
3A02	represent and solve one- and two-step multiplication and division mathematical and real-world problems within 100 using arrays, strip diagrams, and number sentences (equations).	Combination of ER and VA
3A03	describe a multiplication expression as a comparison~~. For example,~~, such as 3 x 24 represents 3 times as much as 24.	
3A04	determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product~~. For example~~, such as the value 4 for [ ] makes 3 x [ ] = 12 a true equation.	
3A05	represent real-world relationships using number pairs in a table and verbal descriptions~~. For example~~, such as 1 insect has 6 legs, 2 insects have 12 legs, and so forth.	

Two-Dimensional and Three-Dimensional Figures.		**3G**
Knowledge and Skills Statement The student is expected to:		
3G01	explain why polygons with 12 or fewer sides may share attributes, such as the number of sides, number of angles, and number of vertices, that define a larger category for classification purposes. ~~For example, rhombuses, parallelograms, rectangles, and squares all have four sides and may be classified as quadrilaterals. (They do not all have four right angles, so they may not all be classified as rectangles.)~~	
~~3G02~~	~~recognize rhombuses, parallelograms, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.~~	Moved to 4th grade
3G03	determine the area of rectangles ~~(~~with whole number side lengths~~)~~ in mathematical and real-world problems using multiplication relating the multiplication~~s~~ to the number of rows times the number unit squares in each row.	
3G04	decompose composite figures formed by rectangles into two non-overlapping rectangles to determine the area of the original figure using the additive property of area.	
3G05	decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape.	*Resource CCSS 3g2, 2g3*

Measurement and Data.		**3M**
Knowledge and Skills Statement The student is expected to:		
3M01	determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in mathematical and real-world problems.	
3M02	determine the solution to mathematical and real-world problems involving addition and subtraction of time intervals in minutes, using pictorial models or tools, such as geared clocks and number lines.	*CCSS*
3M03	determine when it is appropriate to use measurements of liquid volume (capacity) or mass.	Length is covered in 3M01
3M04	determine liquid volume (capacity) or mass using appropriate units and tools.	
3M05	summarize a data set, with multiple categories, using a dot plot, a pictograph, or a bar graph with scaled intervals ~~(e.g., each picture or interval represents five data points)~~.	Not needed, wording is confusing.
3M06	solve one and two-step mathematical and real-world problems using categorical data represented with a frequency table, a dot plot, a pictograph or a bar graph with scaled intervals.	
3M07	~~represent the point on a number line that corresponds to a given fraction greater than 0.~~ represent fractions as distances from zero on a number line with denominators of 2,3, 4, 6 and 8.	Moved and changed to align to second grade.
3M08	Determine the corresponding fraction greater than 0 with denominators of 2, 3, 4, 6, and 8 of a specified point on a number line	aligns to and supports 2nd grade

Grade 4

~~Mathematical Process Standards Grade 4~~		
~~I.~~	~~Apply mathematics to problems arising in everyday life, society and the workplace.~~	VA—Process Standards moved to knowledge and skills statements
~~II.~~	~~Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution and evaluating the problem-solving process.~~	
~~III.~~	~~Select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.~~	
~~IV.~~	~~Communicate mathematical ideas, reasoning, and their implications using symbols, diagrams, graphs, and language.~~	
~~V.~~	~~Create and use representations to organize, record, and communicate mathematical ideas.~~	
~~VI.~~	~~Explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications.~~	

Grade 4 Focal Areas		
Number and Operations	▲	Solving problems with multi-digit addition, subtraction, multiplication and division of whole numbers
Number and Operations	●	Building fractions from unit fractions and comparing fractions Using decimal notation and comparing decimals
Expressions, Equations, and Relationships	■	Extending measurement to area and perimeter formulas

Supporting Topics for the Focal Areas in Grade 4 and Grade 5		
Number and Operations	▲●	Applying place value
	▲	Identifying prime and composite numbers
	▲●	Representing points on a number line that correspond to a given fraction or terminating decimal
Expressions, Equations, and Relationships	▲●■	Representing multi-step problems involving the four operations with whole numbers with expressions and equations
	▲●■	Solving multi-step problems involving the four operations with whole numbers with expressions and equations
	▲●■	Generating and analyzing patterns
Two-Dimensional and Three-Dimensional Figures	■	Classifying 2D figures
Measurement and Data	■	Measuring angles
	▲●■	Converting units of measure
	▲	Representing and interpreting data
Color and symbol shows the connection between Focal Areas and Supporting Topics. + Indicates topic supports Focal Area in Grade 5		

Grade 4

Introduction

Mathematical Process Standards		
Knowledge and Skills Statement. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:		
	Apply mathematics to problems arising in everyday life, society and the workplace.	VA—Process Standards moved to knowledge and skills statements
	Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, ~~and~~ evaluating the problem-solving process as well as the reasonableness of the solution.	
	Select tools, including ~~such as~~ real objects, manipulatives, paper/pencil, ~~and~~ technology, as appropriate and ~~or~~ techniques, including ~~such as~~ mental math, estimation, and number sense, as appropriate to solve problems.	
	Communicate mathematical ideas, reasoning, and their implications using multiple representations including ~~such as~~ symbols, diagrams, graphs, and language as appropriate.	
	Create and use representations to organize, record, and communicate mathematical ideas.	
	Analyze mathematical relationships to connect and communicate mathematical ideas.	
	~~d~~Display, ~~E~~explain, ~~or~~ justify mathematical ideas and arguments using precise mathematical language in written or oral communications.	

Number and Operations.		4N
Knowledge and Skills Statement The student is expected to:		
4N01	explain the meanings of the tenths and hundredths place value positions using fractions.	
4N02	interpret the value of each place-value position as 10 times the position to the right and as 1/10 of the value of the place to its left.	Added from 5N02, supports the money part of 4N03.
4N03	represent decimals including tenths and hundredths using concrete and visual models and money.	Senate Bill 290

4N04	represent the value of the digit in whole numbers through ~~1,000,000~~ 1,000, 000, 000 and decimals to the hundredths using expanded notation and numerals~~. For example, for~~ , such as the number 3.94, the 3 in the ones place is three; the 9 in the tenths place is 0.9; and 4 in the hundredths place is 0.04; and 3.94 is sum of 3 ones, 9 tenths, and 4 hundredths.	Moved from 5th grade.
4N05	represent ~~terminating~~ decimals as fractions with denominators of 10 or 100.	
4N06	round whole numbers to a given place value through ~~to~~ the ~~nearest 10,000 or~~ 100,000's place.	There might be situations where students may estimate or round to other places.
4N07	compare and order whole numbers to one ~~million~~ billion, and represent comparisons using the symbols >, <, or =.	Taken from 4N08
~~4N08~~	~~represent the comparison of two numbers to one million using the symbols >, <, or =.~~	ER Capraro-1 or move to 4N07
4N09	compare and order decimals using concrete and visual models to the hundredths.	Clarification
~~4N10~~	~~represent a point on a number line that corresponds to a given fraction or terminating decimal.~~	Moved to measurement
4N10	Determine fractional and decimal quantities as being close to 0, ½, 1 …	Preparation for 4N19
4N11	represent a fraction a/b as a sum of fractions $1/b$, where a and b are whole numbers and $b>0$, including when a >b.	ER Schmid-4 Clarification
4N12	decompose a fraction into a sum of fractions with the same denominator in more than one way, ~~recording each decomposition~~ using concrete and pictorial models and recording results with symbolic representations such as 7/8=5/8+2/8, 7/8=3/8+4/8, 2 7/8=1+1+7/8, 2 7/8 =8/8+8/8+7/8.	ER Weilmuenster -13 Clarification
4N13	explain that a/b is equivalent to ~~and~~ $(n \times a)/(n \times b)$, where a and b are ~~integers~~ counting numbers, ~~are equivalent fractions~~ using objects and pictorial models.	ER Weilmuenster -13 Clarification
4N14	determine if two given fractions are equivalent using a variety of methods.	Alignment to connect to3rd grade
4N15	generate equivalent fractions to create common numerators or common denominators to compare two fractions with different numerators and different denominators and represent the comparison of two fractions using the symbols >, <, or =.	ER Weilmuenster -13 Clarification
4N16	add and subtract whole numbers and decimals to the hundredths place using a variety of methods, including pictorial models, the inverse relationship between operations, concepts of place value, and efficient algorithms. ~~and properties of addition.~~	ER

4N17	represent addition and subtraction of positive fractions with ~~like~~ common denominators and referring to the same whole, using objects and pictorial models that build to the number line, ~~(~~such as strip diagrams~~)~~ and properties of operations, ~~(includes~~ including fractions as decimals with ~~like~~ common denominators of tenths or hundredths, such as ~~(e.g.,~~ 1/10 + 0.3~~))~~.	Consistent vocabulary 5NO6
4N18	solve mathematical and real-world problems involving positive sums and differences of positive fractions, including mixed numbers, with ~~like~~ common denominators. ~~referring to the same whole, with fluency~~.	Consistent vocabulary
4N19	estimate the reasonableness of ~~answers~~ sums and differences using positive benchmark fractions, ~~(~~0, ¼, ½, ¾, 1~~),~~ referring to the same whole. ~~For example, if ½ is an addend, the sum must be greater than or equal to ½ if added to a positive number.~~	ER & MV
4N20	determine products of a number and 10 or 100 using properties of operations and place value understandings.	
4N21	represent the product of up to a four-digit number by a one-digit number using arrays, area models or equations.	
4N22	represent the product of two 2-digit numbers using arrays, area models, or equations.	
4N23	determine products of up to a four-digit number and a one-digit number or two two-digit numbers using properties of operations; such as associative, commutative, and distributive. ~~(e.g., 34 × 27 is 34 × (2 × 10 + 7) = (34 × 2 × 10) + 34 × 7 = 68 × 10 + 238 = 680 + 238 = 918).~~	ER & MV
4N24	represent the quotient of up to a four-digit whole number divided by a one-digit whole number using arrays, area models, or equations.	
4N25	determine quotients of up to a four-digit dividend and a one-digit divisor using properties of operations, place value understandings, such as ~~(e.g.,~~ partial quotients~~)~~, or the relationship between multiplication and division.	
4N26	solve one and two-step mathematical and real-world problems involving multiplication ~~(including scalar comparisons)~~ and division, ~~(~~including interpreting remainders~~)~~.	ER & group consensus

Expressions, Equations and Relationships.		**4G**
Knowledge and Skills Statement The student is expected to:		
4A01	represent multistep mathematical and real-world problems involving the four operations with whole numbers using ~~strip~~ diagrams, such as strip diagrams and equations with a letter standing for the unknown quantity (variable).	VA

4A02	represent mathematical and real-world ~~and~~ problems using ~~a~~ an input-output table and numerical expressions to generate a number pattern that follows a given rule~~. For example~~, such as given the rule "Add 3" and the starting number 1, use the expressions 1 + 3, 2 + 3, 3 + 3, and so forth to generate a table to represent the relationship of the values in the resulting sequence and their position in the sequence.	ER
4A03	Use models to determine the formulas for the perimeter of a rectangle (l + w + l + w or 2l + 2w), including the special form for perimeter of a square(4s) and the area of a rectangle (l x w) in mathematical and real-world problems.	ER
4A04	determine solutions to mathematical and real-world problems related to perimeter and area of ~~(~~rectangles~~),~~, where ~~(D~~dimensions are all positive whole numbers.~~)~~	

Two-Dimensional and Three-Dimensional Figures.		**4G**
Knowledge and Skills Statement The student is expected to:		
4G01	identify points, lines, line segments, rays, angles ~~(right, acute, obtuse)~~, and perpendicular and parallel lines.	
4G02	Identify acute, right and obtuse triangles.	Essential for future geometric strands.
4G03	recognize rhombuses, parallelograms, trapezoids, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	Moved from 3G02 and added trapezoids
4G0~~2~~4	classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. ~~(The classification of triangles is limited to those that are right triangles and those that are not).~~	Because we will classify triangles by acute, obtuse and right. We will not classify by sides, yet.
4G0~~3~~5	Identify and draw ~~a~~ one or more lines of symmetry, if ~~it~~ they exists~~,~~ for a two-dimensional figure.	Added Identify from 4G05
~~4G05~~	~~identify two-dimensional shapes that have a line of symmetry~~.	Combined with 4G04.
Measurement and Data.		**4M**
Knowledge and Skills Statement The student is expected to:		
4M01	illustrate the measure of an angle as the part of a circle whose center is at the vertex of the angle, that is "cut out" by the rays of the angle. Angle measures are limited to whole numbers.	
4M02	illustrate degrees as the units used to measure an angle, where 1/360 of any circle is 1 degree and an angle that "cuts" *n*/360 out of any circle whose center is at the angle's vertex has a measure of *n* degrees. Angle measures are limited to whole numbers.	
4M03	determine the approximate measures of angles in degrees using a protractor to the nearest whole number.	

4M04	draw an angle with a given measure.	
4M05	decompose angles, such as complementary and supplementary angles, into two non-overlapping angles to determine the measure of an unknown angle in mathematical and real-world problems using the additive property of angle measure.	
4M06	identify relative sizes of measurement units within the customary system.	
4M07	convert ~~the~~ measurements within the customary system ~~of a~~ from a smaller unit into a larger unit or a larger unit into a smaller unit ~~within the customary system~~ when given other equivalent measures represented in a table.	clarification
4M08	determine a solution to real-world and mathematical problems of measurements of length, intervals of time, liquid volumes, masses, and money using addition, subtraction, multiplication, ~~and~~ or division as appropriate ~~of measurements of length, intervals of time, liquid volumes, masses, and money.~~	Reworded for better understanding.
4M09	represent data ~~that can be ordered~~ on a dot plot or a stem and leaf plot marked with whole numbers and fractions.	
4M10	solve one and two-step mathematical and real-world problems using data ~~(~~in whole number, decimal, and fraction form~~)~~ in a frequency table, a dot plot, or a stem and leaf plot~~. For example~~, such as determining~~e~~ the difference in length between the tallest and shortest student in a class from data represented using a dot plot.	
4M10.5	represent fractions and decimals to the tenths or hundredths as distances from zero on a number line.	ER Weilmuenster-14 Askey-11 Moved 4N10 and changed. Supports a focal area.
4M11	determine the corresponding decimal to the tenths or hundredths place of a specified point on a number line.	Aligns to and supports 2nd and 3rd grade. Supports a focal area.

Grade 5

Mathematical Process Standards Grade 5		
I.	Apply mathematics to problems arising in everyday life, society and the workplace.	VA—Process Standards moved to knowledge and skills statements
II.	Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution and evaluating the problem-solving process.	
III.	Select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.	
IV.	Communicate mathematical ideas, reasoning, and their implications using symbols, diagrams, graphs, and language.	
V.	Create and use representations to organize, record, and communicate mathematical ideas.	
VI.	Explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications.	

Grade 5 Focal Areas		
Number and Operations	▲	Solving problems with the addition and subtraction of fractions and decimals
Number and Operations	●	Solving problems with multiplication and division of decimals and beginning understandings for the multiplication and division of fractions
Expressions, Equations, and Relationships	■	Extending measurement to area and volume formulas

Supporting Topics for the Focal Areas in Grade 5 and Grade 6		
Number and Operations	▲●	Applying place value
	▲●	Identifying part-to-whole relationships and equivalence
Expressions, Equations, and Relationships	▲●■	Representing problems with expressions and equations
	▲●■	Solving problems with expressions and equations
	▲●■	Building foundations of functions through patterning
	+	Using the order of operations
Two-Dimensional and Three-Dimensional Figures	■	Classifying 2D figures
Measurement and Data	■	Connecting geometric attributes and measures of 3D figures
	●■	Using units of measure
	■	Representing location using a coordinate plane
	■	Representing and interpreting data
Color and symbol shows the connection between Focal Areas and Supporting Topics. + Indicates topic supports Focal Area in Grade 6		

Grade 5

Introduction

Mathematical Process Standards

Knowledge and Skills Statement. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

	Apply mathematics to problems arising in everyday life, society and the workplace.	VA—Process Standards moved to knowledge and skills statements
	Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, ~~and~~ evaluating the problem-solving process as well as the reasonableness of the solution.	
	Select tools, including ~~such as~~ real objects, manipulatives, paper/pencil, ~~and~~ technology, as appropriate and ~~or~~ techniques, including ~~such as~~ mental math, estimation, and number sense, as appropriate to solve problems.	
	Communicate mathematical ideas, reasoning, and their implications using multiple representations including ~~such as~~ symbols, diagrams, graphs, and language as appropriate.	
	Create and use representations to organize, record, and communicate mathematical ideas.	
	Analyze mathematical relationships to connect and communicate mathematical ideas.	
	~~d~~Display, ~~E~~explain, ~~or~~ justify mathematical ideas and arguments using precise mathematical language in written or oral communications.	

Number and Operations.		**5N**
Knowledge and Skills Statement The student is expected to:		
5N01	represent the value of the digit in ~~whole numbers through 1,000,000,000 and~~ decimals through the thousandths using expanded notation and numerals.	Moved to fourth grade since this is not our focus
5N02	interpret the value of each place-value position as 1/10 of the value of the place to its left or as 10 times the value of the place to its right.	Resource CCSS
5N03	round decimals to tenths or hundredths.	
5N04	compare and order two decimals to thousandths and represent comparisons using the symbols >, <, or =.	ER Capraro-1
~~5N05~~	~~represent the comparison of two decimal numbers to thousandths using the symbols >, <, or =.~~	Moved to 5N04
5N06	represent addition and subtraction of positive fractions with ~~unlike~~ uncommon denominators and referring to the same whole, using objects and pictorial models that build to the number line, ~~(~~such as strip diagrams~~)~~ and properties of operations. This includes fractions as decimals with common denominators of tenths or hundredths, such as ~~(e.g.,~~ 1/5 + 0.3~~)~~.	Consistent vocabulary with 4N17
5N07	solve mathematical and real-world problems involving positive sums and differences of positive rational numbers with fluency, including decimals to the hundredths and mixed numbers.	
5N08	determine products of up to a three-digit number and a two-digit number with fluency.	
5N09	determine quotients of up to a four-digit dividend and a two-digit divisor using properties of operations, place value understandings, such as ~~(e.g.,~~ partial quotients~~)~~, or the relationship between multiplication and division.	
5N10	represent multiplication of decimals with products to the hundredths, using objects and pictorial models, including area models.	Horizontal alignment and clarity
~~5N11~~	~~extend the definitions of, properties of, and relationship between multiplication of whole numbers to multiplication of decimals to hundredths.~~	Stated in 5N12
5N12	determine products of decimals to hundredths, using strategies based on place value understandings, properties of operations, and the relationship to the multiplication ~~and division~~ of whole numbers.	
5N13	represent quotients to hundredths, up to ~~(~~four-digit dividends and two-digit whole number divisors~~)~~, using objects and pictorial models, including area models.	

~~5N14~~	~~extend the definitions of, properties of, and relationship between division with whole numbers to division of decimals.~~	Stated in 5N15
5N15	determine quotients to hundredths, up to ~~(~~four-digit dividends and two-digit whole number divisors~~)~~ , using strategies such as partial quotients, the properties of operations ~~,~~ and the relationship between multiplication and division.	ER & MV
5N16	represent multiplication of a positive fraction and a whole number referring to the same whole, using objects and pictorial models, including area models.	
5N17	~~extend~~ apply the understanding of ~~the definitions of, properties of, and relationship between~~ multiplication with whole numbers to multiplication of a fraction and a whole number.	Clarifying
5N18	represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction, such as ~~[e.g.,~~ 1/3÷7 and 7÷(1/3)~~]~~, using objects and pictorial models, including area models.	
5N19	~~extend~~ apply the understanding of ~~definitions of, properties of, and relationship between~~ division with whole numbers to division with unit fractions and whole numbers.	Clarifying
5N20	estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication or division.	
5N21	solve mathematical and real-world problems involving division of multi-digit whole numbers with up to four-digit dividends and two-digit divisors.	
5N22	determine solutions to mathematical and real-world problems involving products to hundredths or quotients to hundredths, up to ~~(~~four-digit dividends and two-digit whole number divisors~~)~~ with fluency.	ER & MV
5N23	determine solutions to mathematical and real-world problems involving products of positive fractions and whole numbers or positive quotients of positive unit fractions and whole numbers referring to the same whole, such as ~~[e.g.,~~ 1/3÷7 and 7÷(1/3)~~]~~, with fluency. ~~(Within problems requiring division, remainders may be expressed as fractions.)~~	ER & MV

Expressions, Equations and Relationships.	**5A**
Knowledge and Skills Statement The student is expected to:	
5A01	represent multistep mathematical and real-world problems involving the four operations with whole numbers and a positive fraction~~s~~ using equations with a ~~letter~~ variable standing for the unknown quantity , such as (1/3)y + 2 = 4.	Added for specificity

5A02	generate a numerical pattern when given a rule ~~(The rules should be~~ in form $y=ax$ or $y=x+a$~~)~~ for a mathematical or real-world problem situation.	
~~5A03~~	~~distinguish between two rules verbally, numerically, graphically, and symbolically. (The rules should be in form $y=ax$ or $y=x+a$.)~~	? VA
5A03	Generate two numerical patterns, when given two rules in form $y = ax$ or $y = x + a$, and describe the relationship between the two patterns.	To replace the original 5A03
5A04	explain the meaning of including parentheses and brackets verbally, such as 4(14+5) is 4 times as large as (14+5).[~~A student should be able to explain that 4(14+5) is 4 times as large as (14+5) without simplifying the expressions.]~~	Formatting & Clarity
5A05	simplify numerical expressions including up to two levels of grouping, excluding exponents.	
5A06	Use concrete objects and pictorial models to determine the formulas for the volume of a rectangular prism, including the special form for a cube ($V=l$ x w x h, $V=s$ x s x s, and $V=Bh$).	Committee decision for horizontal alignment (5M02)
5A07	determine solutions to mathematical and real-world problems related to perimeter, area ,such as ~~(~~rectangles ~~including squares~~ and composite figures formed by rectangles~~)~~, and volume, such as ~~(~~rectangular prisms~~)~~.	
5A08	write equations that represent mathematical and real-world problems including those involving perimeter, area of ~~(~~rectangles, ~~including squares~~ and composite figures formed by rectangles~~)~~, and volume of ~~(~~rectangular prisms~~)~~.	

Two-Dimensional and Three-Dimensional Figures.	**5G**
Knowledge and Skills Statement The student is expected to:	
5G01 classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers, based on their attributes and properties. ~~(All rectangles have the property that opposite sides are parallel. Therefore, every rectangle is a parallelogram.)~~	Per recommendation from 6th grade.

Measurement and Data.	**5M**
Knowledge and Skills Statement The student is expected to:	
5M01 ~~illustrate~~ recognize a cube with side length of 1 unit as a "unit cube" having "one cubic unit of volume" and the volume of a three-dimensional figure as the number of unit cubes "~~(~~n cubic units~~)~~" needed to fill it with no gaps or overlaps if possible.	Changed verb.

5M02	measure volumes of right rectangular prisms by counting unit cubes ~~(cm^3, in^3, or ft^3)~~ including cubic centimeters, cubic inches and cubic feet, packed into a three-dimensional figure without gaps or overlaps. ~~(~~Side lengths are limited to whole numbers.~~)~~	
5M03	decompose right rectangular prisms into layers to determine the volume of the original figure using the additive property of volume.	
5M04	calculate conversions within a measurement system, ~~(~~customary or metric~~)~~ , for mathematical and real-world problems.	
5M05	explain the key attributes of the coordinate plane and the process for graphing ordered pairs of numbers in the first quadrant. ~~These attributes include: the axes are perpendicular number lines where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0); the x-coordinate, the first number in an ordered pair, indicates movement parallel to the x-axis starting at the origin, and the y-coordinate, the second number, indicates movement parallel to the y-axis starting at the origin.~~	Too instructional.
5M06	graph ordered pairs of numbers arising from mathematical and real-world problems in the first quadrant of the coordinate plane including those generated by number patterns or found in an input-output table.	
5M07	represent categorical and numerical data, including data sets of measurements in fractions or decimals, with bar graphs, dot plots, or stem and leaf plots.	
5M08	represent discrete paired data on a scatter plot.	
5M09	solve one and two-step mathematical and real-world problems using data from a frequency table, a dot plot, a bar graph, a stem and leaf plot, or scatter plot.	