The Common Core State Standards (CCSS) for Mathematics include critical areas for instruction in the introduction for each grade level K-8. These CCSS critical areas are listed in this document and organized by grade bands: K-2, 3-5 and 6-8.

The critical areas are designed to bring focus to the standards at each grade by providing the big ideas that educators can use to build their curriculum and guide instruction. The grade level introductions include at least two and no more than four critical areas for each grade.

The purpose of this document is to facilitate discussion and develop coherence to the K-8 mathematics program. The following are examples that professional learning communities may use to begin the discussion of the critical areas.

Example 1: Identify and discuss the progression of a critical area, e.g., How does the use of number change from kindergarten to 8th grade.

Example 2: Identify and discuss the connections among the critical areas within a grade, e.g., in grade two, how does *using standard units of measure* connect with, *describing and analyzing shape*.

Example 3: Review the critical areas for a grade band, K-2, 3-5 and 6-8. Identify several key ideas that are the foci for the grade band, e.g., *K-2 is largely about number and number sense; even the study of measurement and geometry is in the service of number.*

Note: The Common Core State Standards did not write specific critical areas for the high school conceptual categories. However, the Model Pathways (Appendix A) did identify critical areas for each course in both the traditional and integrated path.

Critical Areas of Focus for K-2				
Kindergarten	First Grade	Second Grade		
In Kindergarten, instructional time should focus on	In Grade 1, instructional time should focus on four critical areas: (1) developing	In Grade 2, instructional time should focus on four critical		
two critical areas: (1) representing, relating, and	understanding of addition, subtraction, and strategies for addition and	areas: (1) extending understanding of base-ten notation;		
operating on whole numbers, initially with sets of	subtraction within 20; (2) developing understanding of whole number	(2) building fluency with addition and subtraction; (3)		
objects; (2) describing shapes and space. More	relationships and place value, including grouping in tens and ones; (3)	using standard units of measure; and (4) describing and		
learning time in Kindergarten should be devoted to	developing understanding of linear measurement and measuring lengths as	analyzing shapes.		
number than to other topics.	iterating length units; and (4) reasoning about attributes of, and composing and	(1) Students extend their understanding of the base-		
(1) Students use numbers, including written	decomposing geometric shapes.	ten system. This includes ideas of counting in fives, tens,		
numerals, to represent quantities and to solve	(1) Students develop strategies for adding and subtracting whole numbers	and multiples of hundreds, tens, and ones, as well as		
quantitative problems, such as counting objects in	based on their prior work with small numbers. They use a variety of models,	number relationships involving these units, including		
a set; counting out a given number of objects;	including discrete objects and length-based models (e.g., cubes connected to	comparing. Students understand multi-digit numbers (up		
comparing sets or numerals; and modeling simple	form lengths), to model add-to, take-from, put-together, take-apart, and	to 1000) written in base-ten notation, recognizing that the		
joining and separating situations with sets of	compare situations to develop meaning for the operations of addition and	digits in each place represent amounts of thousands,		
objects, or eventually with equations such as 5 + 2	subtraction, and to develop strategies to solve arithmetic problems with these	hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens		
= 7 and 7 – 2 = 5. (Kindergarten students should	operations. Students understand connections between counting and addition	+ 3 ones).		
see addition and subtraction equations, and	and subtraction (e.g., adding two is the same as counting on two). They use	(2) Students use their understanding of addition to		
student writing of equations in Kindergarten is	properties of addition to add whole numbers and to create and use increasingly	develop fluency with addition and subtraction within 100.		
encouraged, but it is not required.) Students	sophisticated strategies based on these properties (e.g., "making tens") to solve	They solve problems within 1000 by applying their		
choose, combine, and apply effective strategies	addition and subtraction problems within 20. By comparing a variety of solution	understanding of models for addition and subtraction, and		
for answering quantitative questions, including	strategies, children build their understanding of the relationship between	they develop, discuss, and use efficient, accurate, and		
quickly recognizing the cardinalities of small sets	addition and subtraction.	generalizable methods to compute sums and differences		
of objects, counting and producing sets of given	(2) Students develop, discuss, and use efficient, accurate, and generalizable	of whole numbers in base-ten notation, using their		
sizes, counting the number of objects in combined	methods to add within 100 and subtract multiples of 10. They compare whole	understanding of place value and the properties of		
sets, or counting the number of objects that	numbers (at least to 100) to develop understanding of and solve problems	operations. They select and accurately apply methods		
remain in a set after some are taken away.	involving their relative sizes. They think of whole numbers between 10 and 100	that are appropriate for the context and the numbers		
(2) Students describe their physical world using	in terms of tens and ones (especially recognizing the numbers 11 to 19 as	involved to mentally calculate sums and differences for		
geometric ideas (e.g., shape, orientation, spatial	composed of a ten and some ones). Through activities that build number sense,	numbers with only tens or only hundreds.		
relations) and vocabulary. They identify, name,	they understand the order of the counting numbers and their relative	(3) Students recognize the need for standard units of		
and describe basic two-dimensional shapes, such	magnitudes.	measure (centimeter and inch) and they use rulers and		
as squares, triangles, circles, rectangles, and	(3) Students develop an understanding of the meaning and processes of	other measurement tools with the understanding that		
hexagons, presented in a variety of ways (e.g.,	measurement, including underlying concepts such as iterating (the mental	linear measure involves an iteration of units. They		
with different sizes and orientations), as well as	activity of building up the length of an object with equal-sized units) and the	recognize that the smaller the unit, the more iterations		
three-dimensional shapes such as cubes, cones,	transitivity principle for indirect measurement.	they need to cover a given length.		
cylinders, and spheres. They use basic shapes	(4) Students compose and decompose plane or solid figures (e.g., put two	(4) Students describe and analyze shapes by examining		
and spatial reasoning to model objects in their	triangles together to make a quadrilateral) and build understanding of part-	their sides and angles. Students investigate, describe,		
environment and to construct more complex	whole relationships as well as the properties of the original and composite	and reason about decomposing and combining shapes to		
shapes.	shapes. As they combine shapes, they recognize them from different	make other shapes. Through building, drawing, and		
	perspectives and orientations, describe their geometric attributes, and	analyzing two- and three-dimensional shapes, students		
¹ Students should apply the principle of transitivity of	determine how they are alike and different, to develop the background for	develop a foundation for understanding area, volume,		
measurement to make indirect comparisons, but they need not use this technical term	measurement and for initial understandings of properties such as congruence	congruence, similarity, and symmetry in later grades.		
	and symmetry.			

Critical Areas of Focus for Grades 3-5					
Third Grade	Fourth Grade	Fifth Grade			
In Grade 3, instructional time should focus on four critical areas: (1)	In Grade 4, instructional time should focus on three critical	In Grade 5, instructional time should focus on three critical areas:			
developing understanding of multiplication and division and strategies for	areas: (1) developing understanding and fluency with multi-digit	(1) developing fluency with addition and subtraction of fractions, and			
multiplication and division within 100; (2) developing understanding of	multiplication, and developing understanding of dividing to find	developing understanding of the multiplication of fractions and of			
fractions, especially unit fractions (fractions with numerator 1); (3)	quotients involving multi-digit dividends; (2) developing an	division of fractions in limited cases (unit fractions divided by whole			
developing understanding of the structure of rectangular arrays and of	understanding of fraction equivalence, addition and subtraction	numbers and whole numbers divided by unit fractions); (2) extending			
area; and (4) describing and analyzing two-dimensional shapes.	of fractions with like denominators, and multiplication of	division to 2-digit divisors, integrating decimal fractions into the place			
(1) Students develop an understanding of the meanings of	fractions by whole numbers; (3) understanding that geometric	value system and developing understanding of operations with			
multiplication and division of whole numbers through activities and	figures can be analyzed and classified based on their	decimals to hundredths, and developing fluency with whole number			
problems involving equal-sized groups, arrays, and area models;	properties, such as having parallel sides, perpendicular sides,	and decimal operations; and (3) developing understanding of volume.			
multiplication is finding an unknown product, and division is finding an	particular angle measures, and symmetry.	Students apply their understanding of fractions and fraction			
unknown factor in these situations. For equal-sized group situations,	(1) Students generalize their understanding of place value to	models to represent the addition and subtraction of fractions with			
division can require finding the unknown number of groups or the	1,000,000, understanding the relative sizes of numbers in each	unlike denominators as equivalent calculations with like denominators.			
unknown group size. Students use properties of operations to calculate	place. They apply their understanding of models for	They develop fluency in calculating sums and differences of fractions,			
products of whole numbers, using increasingly sophisticated strategies	multiplication (equal-sized groups, arrays, area models), place	and make reasonable estimates of them. Students also use the			
based on these properties to solve multiplication and division problems	value, and properties of operations, in particular the distributive	meaning of fractions, of multiplication and division, and the relationship			
involving single-digit factors. By comparing a variety of solution strategies,	property, as they develop, discuss, and use efficient, accurate,	between multiplication and division to understand and explain why the			
students learn the relationship between multiplication and division.	and generalizable methods to compute products of multi-digit	procedures for multiplying and dividing fractions make sense. (Note:			
(2) Students develop an understanding of fractions, beginning with unit	whole numbers. Depending on the numbers and the context,	this is limited to the case of dividing unit fractions by whole numbers			
fractions. Students view fractions in general as being built out of unit	they select and accurately apply appropriate methods to	and whole numbers by unit fractions.)			
fractions, and they use fractions along with visual fraction models to	estimate or mentally calculate products. They develop fluency	(2) Students develop understanding of why division procedures			
represent parts of a whole. Students understand that the size of a	with efficient procedures for multiplying whole numbers;	work based on the meaning of base-ten numerals and properties of			
fractional part is relative to the size of the whole. For example, 1/2 of the	understand and explain why the procedures work based on	operations. They finalize fluency with multi-digit addition, subtraction,			
paint in a small bucket could be less paint than $1/3$ of the paint in a larger	place value and properties of operations; and use them to solve	multiplication, and division. They apply their understandings of models			
bucket but $1/2$ of a ribban is longer than $1/2$ of the same ribban because	problems. Students apply their understanding of models for	for decimals, decimal notation, and properties of operations to add and			
bucket, but 1/3 of a hibbon is folger than 1/5 of the same hibbon because	division, place value, properties of operations, and the	subtract decimals to hundredths. They develop fluency in these			
when the ribbon is divided into 3 equal parts, the parts are longer than	relationship of division to multiplication as they develop,	computations, and make reasonable estimates of their results.			
when the ribbon is divided into 5 equal parts. Students are able to use	discuss, and use efficient, accurate, and generalizable	Students use the relationship between decimals and fractions, as well			
They ask a problem that involve comparing freations by using viewel	procedures to find quotients involving multi-digit dividends. They	as the relationship between finite decimals and whole numbers (i.e., a			
fraction models and strategies based on noticing agual numerators or	select and accurately apply appropriate methods to estimate	finite decimal multiplied by an appropriate power of 10 is a whole			
denominators	and mentally calculate quotients, and interpret remainders	number), to understand and explain why the procedures for multiplying			
(2) Studente recognize crea ca en attribute of two dimensional regione	based upon the context.	and dividing finite decimals make sense. They compute products and			
(3) Students recognize area as an attribute of two-dimensional regions.	(2) Students develop understanding of fraction equivalence	quotients of decimals to nundreatins efficiently and accurately.			
size units of area required to cover the shape without gaps or overlaps	and operations with fractions. They recognize that two different	(3) Students recognize volume as an attribute of three-dimensional			
size units of area required to cover the shape without gaps of overlaps, a	fractions can be equal (e.g., $10/9 = 0/3$), and they develop	space. They understand that volume can be measured by finding the			
area. Students understand that rectangular arrays can be decomposed	methods for generating and recognizing equivalent fractions.	utility to a same-size units of volume required to fill the space			
into identical rows or into identical columns. By decomposing rectangles	Students extend previous understandings about how fractions	without gaps of overlaps. They understand that a 1-unit by 1-unit by 1-			

into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle. (4) Students describe, analyze, and compare properties of twodimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also

relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.

(3) Students describe, analyze, compare, and classify twodimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

appropriate units, strategies, and tools for solving problems that

involve estimating and measuring volume. They decompose three-

dimensional shapes and find volumes of right rectangular prisms by

measure necessary attributes of shapes in order to determine volumes

viewing them as decomposed into layers of arrays of cubes. They

to solve real world and mathematical problems.

Critical Areas of Focus for Grades 6-8					
Grade Six	Grade Seven	Grade Eight			
In Grade 6, instructional time should focus on four critical areas:	In Grade 7, instructional time should focus on four	In Grade 8, instructional time should focus on three critical			
(1) connecting ratio and rate to whole number multiplication and	critical areas: (1) developing understanding of and	areas: (1) formulating and reasoning about expressions and			
division and using concepts of ratio and rate to solve problems; (2)	applying proportional relationships; (2) developing	equations, including modeling an association in bivariate data			
completing understanding of division of fractions and extending	understanding of operations with rational numbers and	with a linear equation, and solving linear equations and systems			
includes pagetive numbers (2) writing interpreting and using	working with expressions and linear equations; (3) solving	of linear equations, (2) grasping the concept of a function and using functions to departible quantitative relationships. (2)			
includes negative numbers; (3) writing, interpreting, and using	problems involving scale drawings and informal	using functions to describe quantitative relationships; (3)			
expressions and equations, and (4) developing understanding of	geometric constructions, and working with two- and three-	distance and understanding			
(1) Studente use researing about multiplication and division to	dimensional shapes to solve problems involving area,	and applying the Duthagereen Theorem			
(1) Students use reasoning about multiplication and division to	surface area, and volume; and (4) drawing inferences	(1) Studente use lineer equations and systems of lineer			
solve ratio and rate problems about quantities. By viewing	about populations based on samples.	(1) Students use linear equations and systems of linear			
requivalent fatios and fates as deriving from, and extending, pairs of	(1) Students extend their understanding of ratios and	replane Students recentize equations for properties (u/v =			
simple drewings that indicate the relative size of quantities, students	develop understanding of proportionality to solve single-	problems. Students recognize equations for proportions $(y/x - m)$			
simple utawings that indicate the relative size of quantities, students	and multi-step problems. Students use their	(1101 y - 111 x) as special initial equations $(y - 111 x + D)$,			
and rates. Thus students expand the scope of problems for which	understanding of ratios and proportionality to solve a	slope, and the graphs are lines through the origin. They			
they can use multiplication and division to solve problems and they	wide variety of percent problems, including those	understand that the slope (m) of a line is a constant rate of			
connect ratios and fractions. Students solve a wide variety of	involving discounts, interest, taxes, tips, and percent	change so that if the input or v-coordinate changes by an			
problems involving ratios and rates	increase or decrease. Students solve problems about	amount A the output or v-coordinate changes by the amount			
(2) Students use the meaning of fractions the meanings of	scale drawings by relating corresponding lengths	m. A Students also use a linear equation to describe the			
multiplication and division and the relationship between	between the objects or by using the fact that relationships	association between two quantities in bivariate data (such as			
multiplication and division to understand and explain why the	of lengths within an object are preserved in similar	arm span vs. height for students in a classroom). At this grade			
procedures for dividing fractions make sense. Students use these	objects. Students grant proportional relationships and	fitting the model and assessing its fit to the data are done			
operations to solve problems. Students extend their previous	understand the unit rate informally as a measure of the	informally. Interpreting the model in the context of the data			
understandings of number and the ordering of numbers to the full	steepness of the related line, called the slope. They	requires students to express a relationship between the two			
system of rational numbers, which includes negative rational	distinguish proportional relationships from other	quantities in question and to interpret components of the			
numbers, and in particular negative integers. They reason about		relationship (such as slope and <i>v</i> -intercept) in terms of the			
the order and absolute value of rational numbers and about the	(2) Students develop a unified understanding of	situation.			
location of points in all four quadrants of the coordinate plane.	(2) Students develop a unified understanding of	Students strategically choose and efficiently implement			
(3) Students understand the use of variables in mathematical	number, recognizing fractions, decimals (that have a limite	procedures to solve linear equations in one variable.			
expressions. They write expressions and equations that	of a repeating decimal representation), and percents as	understanding that when they use the properties of equality and			
correspond to given situations, evaluate expressions, and use	different representations of rational numbers. Students	the concept of logical equivalence, they maintain the solutions			
expressions and formulas to solve problems. Students understand	extend addition, subtraction, multiplication, and division to	of the original equation. Students solve systems of two linear			
that expressions in different forms can be equivalent, and they use	all rational numbers, maintaining the properties of	equations in two variables and relate the systems to pairs of			
the properties of operations to rewrite expressions in equivalent	operations and the relationships between addition and	lines in the plane; these intersect, are parallel, or are the same			
forms. Students know that the solutions of an equation are the	subtraction, and multiplication and division. By applying	line. Students use linear equations, systems of linear equations,			
values of the variables that make the equation true. Students use	these properties, and by viewing negative numbers in	linear functions, and their understanding of slope of a line to			
properties of operations and the idea of maintaining the equality of	terms of everyday contexts (e.g., amounts owed or	analyze situations and solve problems.			
both sides of an equation to solve simple one-step equations.	temperatures below zero), students explain and interpret	(2) Students grasp the concept of a function as a rule that			
Students construct and analyze tables, such as tables of	the rules for adding, subtracting, multiplying, and dividing	assigns to each input exactly one output. They understand that			
quantities that are in equivalent ratios, and they use equations	with negative numbers. They use the arithmetic of	functions describe situations where one quantity determines			
(such as 3x = y) to describe relationships between quantities.	rational numbers as they formulate expressions and	another. They can translate among representations and partial			
(4) Building on and reinforcing their understanding of number,	equations in one variable and use these equations to	representations of functions (noting that tabular and graphical			
students begin to develop their ability to think statistically.	solve problems.	representations may be partial representations), and they			
Students recognize that a data distribution may not have a definite	(3) Students continue their work with area from Grade	describe how aspects of the function are reflected in the			
center and that different ways to measure center yield different					

Critical Areas of Focus for Grades 6-8				
Grade Six	Grade Seven	Grade Eight		
values. The median measures center in the sense that it is roughly the middle value. The mean measures center in the sense that it is the value that each data point would take on if the total of the data values were redistributed equally, and also in the sense that it is a balance point. Students recognize that a measure of variability (interquartile range or mean absolute deviation) can also be useful for summarizing data because two very different sets of data can have the same mean and median yet be distinguished by their variability. Students learn to describe and summarize numerical data sets, identifying clusters, peaks, gaps, and symmetry, considering the context in which the data were collected. Students in Grade 6 also build on their work with area in elementary school by reasoning about relationships among shapes to determine area, surface area, and volume. They find areas of right triangles, other triangles, and special quadrilaterals by decomposing these shapes, rearranging or removing pieces, and relating the shapes to rectangles. Using these methods, students discuss, develop, and justify formulas for areas of triangles and parallelograms. Students find areas of polygons and surface areas of prisms and pyramids by decomposing them into pieces whose area they can determine. They reason about right rectangular prisms with fractional side lengths to extend formulas for the volume of a right rectangular prism to fractional side lengths. They prepare for work on scale drawings and constructions in Grade 7 by drawing polygons in the coordinate plane.	 6, solving problems involving the area and circumference of a circle and surface area of three-dimensional objects. In preparation for work on congruence and similarity in Grade 8 they reason about relationships among two-dimensional figures using scale drawings and informal geometric constructions, and they gain familiarity with the relationships between angles formed by intersecting lines. Students work with three-dimensional figures, relating them to two-dimensional figures by examining cross-sections. They solve real-world and mathematical problems involving area, surface area, and volume of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes and right prisms. (4) Students build on their previous work with single data distributions to compare two data distributions and address questions about differences between populations. They begin informal work with random sampling to generate data sets and learn about the importance of representative samples for drawing inferences. 	different representations. (3) Students use ideas about distance and angles, how they behave under translations, rotations, reflections, and dilations, and ideas about congruence and similarity to describe and analyze two-dimensional figures and to solve problems. Students show that the sum of the angles in a triangle is the angle formed by a straight line, and that various configurations of lines give rise to similar triangles because of the angles created when a transversal cuts parallel lines. Students understand the statement of the Pythagorean Theorem and its converse, and can explain why the Pythagorean Theorem holds, for example, by decomposing a square in two different ways. They apply the Pythagorean Theorem to find distances between points on the coordinate plane, to find lengths, and to analyze polygons. Students complete their work on volume by solving problems involving cones, cylinders, and spheres.		