CENT PERCENT MATHEMATICS

100% Success for 8bn+ in 100% K-12 Math

Ace 'AI & Industry 4.0 Era'

Amplify Your AIQ & Wealth

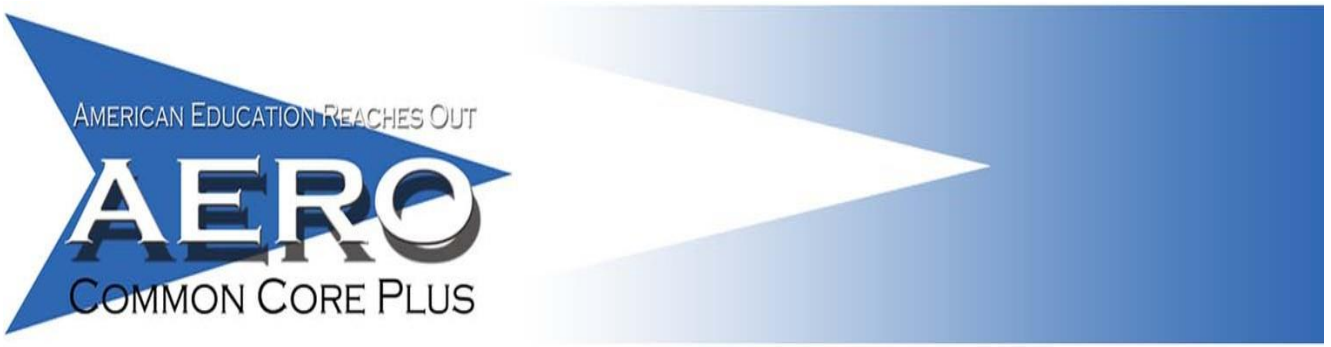
Uses AERO, or, US ‘Common Core Plus’ Mathematics Curriculum, for the overall academic planning.

The choice of AERO is to ensure progressive integrity of MATHEMATICAL THINKING in the lessons.

However, the lesson content shall be based the unique ‘A – Z’ Mathematics that we have authored.

'A - Z ' Mathematics is THE FIRST-EVER mathematics learning resource that is threaded by MATHEMATICAL LOGIC.
The very conception and creation of 'A - Z' Mathematics implied truly 100% Mathematics, that mathematises thinking.

The combining of the curricular detailing of mathematics by AERO, and the visualisation and verbalisation of 'A - Z' Mathematics, is the magic, awaited for 200 years.



CURRICULUM FRAMEWORK FOR MATH

About AERO

American Education Reaches Out (AERO) is a project supported by the United States Department of Education's Office of Overseas Schools, which establishes an implementation framework for international American schools which offer a standards-based U.S. curriculum.

Aligned with Common Core standards and Next Generation Science Standards, AERO is considered to be "Common Core Plus," providing an "enduring understanding, essential questions and learning progression."

Why US Common Core Mathematics?

It is one of the best curriculum for learning MATHEMATICAL THINKING. That is, to MATHEMATISE THINKING.

In these times of ever-sharpening Artificial (General) Intelligence, mathematised thinking is the only way to be successful. The typical rote, methodised, logic-less mathematics is of no value.

This curriculum will also empower foundation for success in ALL School System Curricula, globally.

The Background

One of the primary reasons, for poor mathematics education, is the lack of distinction, between mathematics content (largely methods, and practice), and mathematical thinking. This ambiguity, is also reflected, in assessment, and in evaluation.

The education system assumes, that teaching mathematics compulsorily, is enough, by itself, to develop mathematical thinking.

But, why content, and thinking, are different? That is, why the methods, and ceaseless practice, in mathematics education, does not promote mathematised mind.

For, the content does not focus on logic, process, reasoning, and the history of relevant mathematical concepts.

Briefly, mathematical thinking is not, thinking about the subject matter of mathematics, but, a way of looking, at situations, and conditions. It is critical for success in all academic 'subjects.'

AERO Mathematics Standards

Progressions Pre K- 2				
Domain: Counting	**PreK**	**K**	**1**	**2**
Know number names and the count sequence	AERO.PK.CC.1 Count verbally to 10 by ones.	AERO.K.CC.1 **DOK 1** Count to 100 by ones and by tens.	AERO.1. NBT.1 **DOK 1,2** Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	AERO.2.NBT.2 **DOK 1** Count within 1000; skip-count by 5s, 10s, and 100s.
	AERO.PK.CC.2 Recognize the concept of just after or just before a given number in the counting sequence up to 10.	AERO.K.CC.2 **DOK 1,2** Count forward beginning from a given number within the known sequence (instead of having to begin at 1).		
	AERO.PK.CC.3 Identify written numerals 0-10.	AERO.K.CC.3 **DOK 1** Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects)		AERO.2.NBT.3 **DOK 1,2** Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
Count to tell the number of objects.	AERO.PK.CC.4 Understand the relationship between numbers and quantities; connect counting to cardinality.	AERO.K.CC.4 **DOK 2** Understand the relationship between numbers and quantities; connect counting to cardinality		
	AERO.PK.CC.4a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object	AERO.K.CC.4a DOK 2 When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.		

Domain: Counting	PreK	K	1	2
Count to tell the number of objects.	AERO.PK.CC.4b Recognize that the last number name said tells the number of objects counted.	AERO.K.CC.4b **DOK 2** Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted		
	AERO.PK.CC.4c Recognize that each successive number name refers to a quantity that is one larger.	AERO.K.CC.4c **DOK 2** Understand that each successive number name refers to a quantity that is one larger.		
	AERO.PK.CC.5 Represent a number (0-5, then to 10) by producing a set of objects with concrete materials, pictures, and/or numerals (with 0 representing a count of no objects).	AERO.K.CC.5 **DOK 2** Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.		
	AERO.PK.CC.6 Recognize the number of objects in a set without counting (Subitizing). (Use 0-5 objects)			

Domain: Counting	PreK	K	1	2
Compare numbers.	AERO.PK.CC.7 Explore relationships by comparing groups of objects up to 10, to determine greater than/more or less than, and equal to/same Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies (includes groups with up to 5 objects).	AERO.K.CC.6 **DOK 2** Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies AERO.K.CC.7 **DOK 1.2** Compare two numbers between 1 and 10 presented as written numerals.	AERO.1.NBT.3 **DOK 2** Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	AERO.2.NBT.4 **DOK 2** Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.

Domain: Numbers in Base Ten	PreK	K	1	2
Work with numbers 11-19 to gain foundations for place value	AERO.PK.NBT.1 Investigate the relationship between ten ones and ten	AERO.K.NBT.1 **DOK 2** Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (such as 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.	AERO.1.NBT.2 **DOK 2** Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:	AERO.2.NBT.1 **DOK 2** Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:
			AERO.1.NBT.2a **DOK 2** 10 can be thought of as a bundle of ten ones — called a "ten."	AERO.2.NBT.1a **DOK 2** 100 can be thought of as a bundle of ten tens — called a "hundred."
			AERO.1.NBT.2b **DOK 2** The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.	
			AERO.1.NBT.2c **DOK 2** The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones)	AERO.2.NBT.1b **DOK 2** The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).

Domain: Numbers in Base Ten	PreK	K	1	2
Use place value understanding and properties of operations to add and subtract.			AERO.1.NBT.4 **DOK 1,2,3** Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	AERO.**2.NBT.5** **DOK 1,2** **Fluently** add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
			AERO.1.NBT.5 **DOK 2,3** Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	AERO.2.NBT.8 **DOK 2** Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.

Domain: Numbers in Base Ten	PreK	K	1	2
Use place value understanding and properties of operations to add and subtract.			AERO.1.NBT.6 **DOK 2,3** Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	

Domain: Operations Algebraic Thinking	PreK	K	1	2
Represent and solve problems involving addition and subtraction.				AERO.2.NBT.7 DOK 2 Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
Represent and solve problems involving addition and subtraction.				AERO.2.NBT.6 DOK 2 Add up to four two-digit numbers using strategies based on place value and properties of operations.
				AERO.2.NBT.9 DOK 3 Explain why addition and subtraction strategies work, using place value and the properties of operations.

Domain: Operations Algebraic Thinking	PreK	K	1	2
Understand addition, and understand ubtraction.	AERO.PK.OA.1 Explore addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, or verbal explanations.	AERO.K.OA.1 **DOK 2** Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.	AERO.1.OA.1 **DOK 2** Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem	AERO.2.OA.1 **DOK 2** Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
		AERO.K.OA.2 **DOK 2** Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.	AERO.1.OA.2 **DOK 2** Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	
	AERO.PK.OA.2 Decompose quantity (less than or equal to 5, then to 10) into pairs in more than one way (e.g., by using objects or drawings).	AERO.K.OA.3 **DOK 2.3** Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1)		

Domain: Operations Algebraic Thinking	PreK	K	1	2
Understand addition, and Understand subtraction.	AERO.PK.OA.3 For any given quantity from (0 to 5, then to 10) find the quantity that must be added to make 5, then to 10, e.g., by using objects or drawings.	AERO.K.OA.4 **DOK 2** For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.		
		AERO.K.OA.5 **DOK 1** **Fluently add and subtract within 5.**	AERO.1.OA.6 **DOK 1,2** Add and subtract within 20, **demonstrating fluency for addition and subtraction within 10**. Use strategies such as counting on; making ten *(e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14*); decomposing a number leading to a ten (*e.g., 13 - 4 = 13 - 3 - 1 = 10 - 1 = 9*); using the relationship between addition and subtraction (*e.g., knowing that 8 + 4 = 12, one knows 12 - 8 = 4*); and creating equivalent but easier or known sums (*e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13*).	AERO.2.OA.2 **DOK 1** **Fluently add and subtract within 20** using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.

Domain: Operations Algebraic Thinking	PreK	K	1	2
Understand and apply properties of operations and the relationship between addition and subtraction			AERO.1.OA.3 **DOK 2** Apply properties of operations as strategies to add and subtract. Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.) AERO.1.OA.4 **DOK 2** Understand subtraction as an unknown-addend problem. For example, subtract 10 - 8 by finding the number that makes 10 when added to 8	
Add and subtract within 20.			AERO.1.OA.5 **DOK 1,2** Relate counting to addition and subtraction (e.g., by counting on 2 to add 2)	

Domain: Operations Algebraic Thinking	PreK	K	1	2
Work with addition and subtraction equations.			AERO.1.OA.7 **DOK 3** Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 - 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2. AERO.1.OA.8 **DOK 2** Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = _ - 3, 6 + 6 = _ .	

Domain: Operations Algebraic Thinking	PreK	K	1	2
Work with equal groups of objects to gain foundations for multiplication.				AERO.2.OA.3 **DOK 2** Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.
				AERO.2.OA.4 **DOK 2** Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

Domain: Measurement and Data	PreK	K	1	2
Describe and compare measurable attributes	AERO.PK.MD.1 Describe measurable attributes of objects, such as length or weight.	AERO.K.MD.1 **DOK 2** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object	.	
Measure lengths indirectly and by iterating length units			AERO.1.MD.1 **DOK 2,3** Order three objects by length; compare the lengths of two objects indirectly by using a third object	AERO.2.MD.1 **DOK 1** Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
			AERO.1.MD.2 **DOK 1,2** Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps	AERO.2.MD.2 **DOK 2,3** Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
				AERO.2.MD.3 **DOK 2** Estimate lengths using units of inches, feet, centimeters, and meters.
				AERO.2.MD.4 **DOK 1, 2** Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

Domain: Measurement and Data	PreK	K	1	2
Relate addition and subtraction to length				AERO.2.MD.5 **DOK 2** Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
				AERO.2.MD.6 **DOK 1,2** Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.
	AERO.PK.MD.2 Directly compare two objects with a measurable attribute in common, using words such as longer/shorter; heavier/lighter; or taller/shorter.	AERO.K.MD.2 **DOK 2** Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.		

Domain: Measurement and Data	PreK	K	1	2
Tell and write time.			AERO.1.MD.3 **DOK 1** Tell and write time in hours and half-hours using analog and digital clocks.	AERO.2.MD.7 **DOK 1** Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
				AERO.2.MD.8 **DOK 2** Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?
Classify objects and count the number of objects in each category.	AERO.PK.MD.3 Sort objects into given categories	AERO.K.MD.3 **DOK 1,2** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.		
Represent and interpret data.	AERO.PK.MD.4 Compare categories using words such as greater than/more, less than, and equal to/same.		AERO.1.MD.4 **DOK 2,3** Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.	AERO.2.MD.9 **DOK 2** Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

Domain: Geometry	PreK	K	1	2
Represent and interpret data.				AERO.2.MD.10 DOK 2 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems1 using information presented in a bar graph.
Identify and describe shapes	AERO.PK.G.1 Match like (congruent and similar) shapes.	AERO.K.G.1 DOK 1,2 Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to		
	AERO.PK.G.2 Group the shapes by attributes.	AERO.K.G.2 DOK 1 Correctly name shapes regardless of their orientations or overall size.		
	AERO.PK.G.3 Correctly name shapes (regardless of their orientations or overall size).	AERO.K.G.3 DOK 1 Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").		

Domain: Geometry	PreK	K	1	2
Analyze, compare, create, and compose shapes.	AERO.PK.G.4 Describe three-dimensional objects using attributes.	AERO.K.G.4 **DOK 2,3** Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).	AERO.1.G.1 **DOK 2** Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.	AERO.2.G.1 **DOK 1, 2** Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.1 Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
	AERO.PK.G.5 Describe three-dimensional objects using attributes.	AERO.K.G.5 **DOK 2,3** Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.	AERO.1.G.2 **DOK 2,3** Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape	
	AERO.PK.G.6 Compose and describe structures using three-dimensional shapes. Descriptions may include shape attributes, relative position, etc	AERO.K.G.6 **DOK 2,3** Compose simple shapes to form larger shapes. For example, "Can you join these two triangles with full sides touching to make a rectangle?		

Domain: Geometry	PreK	K	1	2
Analyze, compare, create, and compose shapes.			AERO.1.G.3 **DOK 1,2** Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.	AERO.2.G.2 **DOK 2** Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. AERO.2.G.3 **DOK 2,3** Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

Mathematical Practices	PreK/K	1	2
1. Make sense of problems and persevere in solving them.	Use both verbal and nonverbal means, these students begin to explain to themselves and others the meaning of a problem, look for ways to solve it, and determine if their thinking makes sense or if another strategy is needed.	Explain to themselves the meaning of a problem and look for ways to solve it. May use concrete objects or pictures to help them conceptualize and solve problems. Are willing to try other approaches.	In second grade, students realize that doing mathematics involves solving problems and discussing how they solved them. Students explain to themselves the meaning of a problem and look for ways to solve it. They may use concrete objects or pictures to help them conceptualize and solve problems. They may check their thinking by asking themselves, "Does this make sense?" They make conjectures about the solution and plan out a problem-solving approach.
2. Reason abstractly and quantitatively.	Begin to use numerals to represent specific amount (quantity) Begin to draw pictures, manipulate objects, use diagrams or charts, etc. to express quantitative ideas such as a joining situation Begin to understand how symbols (+, -, =) are used to represent quantitative ideas in a written format.	Recognize that a number represents a specific quantity. Connect the quantity to written symbols. Create a representation of a problem while attending to the meanings of the quantities.	Younger students recognize that a number represents a specific quantity. They connect the quantity to written symbols. Quantitative reasoning entails creating a representation of a problem while attending to the meanings of the quantities. Second graders begin to know and use different properties of operations and also relate addition and subtraction to length.

Mathematical Practices	PreK/K	1	2
3. Construct viable arguments and critique the reasoning of others.	Begin to clearly express, explain, organize and consolidate their math thinking using both verbal and written representations. Begin to learn how to express opinions, become skillful at listening to others, describe their reasoning and respond to others' thinking and reasoning. Begin to develop the ability to reason and analyze situations as they consider questions such as, "Are you sure...?" , "Do you think that would happen all the time...?", and "I wonder why...?"	Construct arguments using concrete referents, such as objects, pictures, drawings, and actions. Explain their own thinking and listen to others' explanations. Decide if the explanations make sense and ask questions.	Construct arguments using concrete referents, such as objects, pictures, drawings, and actions. Explain their own thinking and listen to others' explanations. Decide if the explanations make sense and ask appropriate questions.
4. Model with mathematics.	Begin to experiment with representing real-life problem situations in multiple ways such as with numbers, words (mathematical language), drawings, objects, acting out, charts, lists, and number sentences.	Experiment with representing problem situations in multiple ways including numbers, words (mathematical language), drawing pictures, using objects, acting out, making a chart or list, creating equations, etc. Connect the different representations and explain the connections.	Experiment with representing problem situations in multiple ways including numbers, words (mathematical language), drawing pictures, using objects, acting out, making a chart or list, creating equations, etc. Connect the different representations and explain the connections. Able to use all representations as needed.

Mathematical Practices	PreK/K	1	2
5. Use appropriate tools strategically.	Begin to explore various tools and use them to investigate mathematical concepts. Through multiple opportunities to examine materials Experiment and use both concrete materials (e.g. 3- dimensional solids, connecting cubes, ten frames, number balances) and technological materials (e.g., virtual manipulatives, calculators, interactive websites) to explore mathematical concepts.	Decide when certain tools might be helpful when solving a mathematical problem. *For example , first graders decide it might be best to use colored chips to model an addition problem.*	Consider the available tools (including estimation) when solving a mathematical problem and decide when certain tools might be better suited. *For example, second graders may decide to solve a problem by drawing a picture rather than writing an equation.*
6. Attend to precision.	Begin to express their ideas and reasoning using words. Begin to describe their actions and strategies more clearly, understand and use grade-level appropriate vocabulary accurately, and begin to give precise explanations and reasoning regarding their process of finding solutions.	Use clear and precise language in their discussions with others and when they explain their own reasoning.	Use clear and precise language in their discussions with others Explain their own reasoning. .

Mathematical Practices	PreK/K	1	2
7. Look for and make use of structure. (Deductive Reasoning)	Begin to look for patterns and structures in the number system and other areas of mathematics.	Begin to discern a pattern or structure. *For example, if students recognize 12 + 3 = 15, then they also know 3 + 12 = 15. (Commutative property of addition.) To add 4 + 6 + 4, the first two numbers can be added to make a ten, so 4 + 6 + 4 = 10 + 4 = 14.*	Look for patterns. *For example , they adopt mental math strategies based on patterns (making ten, fact families, doubles).*
8. Look for and express regularity in repeated reasoning. (Inductive Reasoning)	Begin to notice repetitive actions in geometry, counting, comparing, etc.	Notice repetitive actions in counting and computation, etc. Continually check their work by asking themselves, "Does this make sense?"	Notice repetitive actions in counting and computation, etc. Look for shortcuts, when adding and subtracting, such as rounding up and then adjusting the answer to compensate for the rounding. Continually check their work by asking themselves, "Does this make sense?"