Content Area	Mathematics	Grade Level	Kindergarten
Course Name/Course Code			

Standard	Grade Level Expectations (GLE)	GLE Code
1. Number Sense, Properties, and Operations	1. Whole numbers can be used to name, count, represent, and order quantity	MA10-GR.K-S.1-GLE.1
	2. Composing and decomposing quantity forms the foundation for addition and subtraction	MA10-GR.K-S.1-GLE.2
2. Patterns, Functions, and Algebraic Structures	Expectations for this standard are integrated into the other standards at this grade level.	
3. Data Analysis, Statistics, and Probability	Expectations for this standard are integrated into the other standards at this grade level.	
4. Shape, Dimension, and Geometric Relationships	1. Shapes are described by their characteristics and position and created by composing and decomposing	MA10-GR.K-S.4-GLE.1
	2. Measurement is used to compare and order objects	MA10-GR.K-S.4-GLE.2
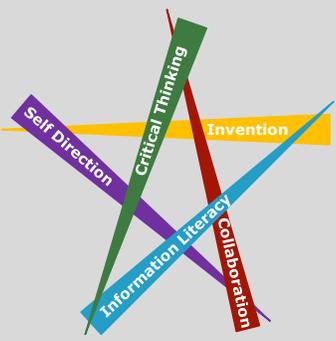
Colorado 21st Century Skills

Critical Thinking and Reasoning: *Thinking Deeply, Thinking Differently*

Information Literacy: *Untangling the Web*

Collaboration: *Working Together, Learning Together*

Self-Direction: *Own Your Learning*

Invention: *Creating Solutions*

Mathematical Practices:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Unit Titles	Length of Unit/Contact Hours	Unit Number/Sequence
Building Block Numbers	5 weeks	Before Tricky Teens unit
Shapes all Around us	6-7 weeks	
Tricky Teens and Beyond	6 weeks	
Breaking apart is hard to do	5 weeks	Before Put it Together and Take it Apart unit and after Tricky Teens and Beyond unit
Put it Together and Take it Apart	6 weeks	

Curriculum Development Overview
Unit Planning for Kindergarten Mathematics

Unit Title	Building Block Numbers			Length of Unit	5 weeks
Focusing Lens(es)	Representation Comparison	**Standards and Grade Level Expectations Addressed in this Unit**	MA10-GR.K-S.1-GLE.1		
Inquiry Questions (Engaging-Debatable):	• Is there a wrong way to count? (MA10-GR.K-S.1-GLE.1-IQ.2) • Why do we count things? (MA10-GR.K-S.1-GLE.1-IQ.1)				
Unit Strands	Counting and Cardinality, Personal Financial Literacy				
Concepts	Counting, cardinality, number names, quantity, numerals, sequence, zero, equivalence				

Generalizations My students will **Understand** that…	Guiding Questions	
	Factual	**Conceptual**
When counting objects, each object is paired with one and only one number name and each number name with one and only one object (one-to-one correspondence principle) (MA10-GR.K-S.1-GLE.1-EO.b.i)	How many number names do you say with each object you are counting?	Why do we only use one number name with each object we touch when counting? How do you know when all the objects in a set have been counted?
Number names are arranged in a fixed order (stable-order of number names principle) (MA10-GR.K-S.1-GLE.1-EO.a)	What are the number names in order from 1 to 10?	Why do we have to say the number names in the same order each time we count?
The order in which objects are counted does not impact the total number of objects, and the quantity of objects remains constant even if the objects are rearranged (order-irrelevance principle) (MA10-GR.K-S.1-GLE.1-EO.b.i)	What does it mean to be second and how is it different than two? (MA10-GR.K-S.1-GLE.1-IQ.4)	Is there a wrong way to count? Why?
The last number name said when counting a set of objects tells the number of objects counted, answering the question, "how many," (cardinal principle) (MA10-GR.K-S.1-GLE.1-EO.b.i)	What is the total number of objects in this set? Can you show me how your total is correct?	How do you determine how many?
The principles of counting (one-to-one correspondence, stable order of number names, order irrelevance, and cardinal) applies not only to objects with the same attributes but also different attributes or non-visual things such as sounds or actions (abstraction principle) (MA10-GR.K-S.1-GLE.1-EO.b)	What types of things can be counted?	How do you count sounds? Actions?

Numerals represent quantities and each successive number name refers to a quantity one larger than the previous number name (MA10-GR.K-S.1-GLE.1-EO.a, c)	What is a numeral?	How can you represent a number in a variety of ways?
The terms "greater than," "less than," and "same as" (equivalence) document the comparison and ordering of sets of objects. (MA10-GR.K-S.1-GLE.1-EO.c)	What does it mean for one set of objects to have the same amount as another set?	How do you know if there is more, less or the same amount of objects? (MA10-GR.K-S.1-GLE.1-IQ.3)
The numeral zero provides the means to represent and document when there are no objects to count (MA10-GR.K-S.1-GLE.1-EO.a.iii)	What number is one less than one?	Why do we need the number zero?

Key Knowledge and Skills: **My students will…**	*What students will know and be able to do are so closely linked in the concept-based discipline of mathematics. Therefore, in the mathematics samples what students should know and do are combined.*

- Count forward to 10 by ones from any given number (MA10-GR.K-S.1-GLE.1-EO.a.i., a.ii)
- Write numbers 0 to 10 as numerals (MA10-GR.K-S.1-GLE.1-EO.a.iii)
- Represent a number of objects with a written numeral with 0 representing a count of no objects (MA10-GR.K-S.1-GLE.1-EO.a.iii)
- Count as many as 10 things in a scattered configuration (MA10-GR.K-S.1-GLE.1-EO.b.ii)
- Count out a specified number of objects for quantities less than 10 (MA10-GR.K-S.1-GLE.1-EO.b.ii)
- Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group (MA10-GR.K-S.1-GLE.1-EO.c.i)
- Compare two numbers between 1 and 10 as written numbers (MA10-GR.K-S.1-GLE.1-EO.c.ii)
- Identify groups of objects fewer than five without counting (MA10-GR.K-S.1-GLE.1-EO.c.iii) *

Critical Language: includes the Academic and Technical vocabulary, semantics, and discourse which are particular to and necessary for accessing a given discipline. EXAMPLE: A student in Language Arts can demonstrate the ability to apply and comprehend critical language through the following statement: *"Mark Twain exposes the hypocrisy of slavery through the use of satire."*	
A student in _____ can demonstrate the ability to apply and comprehend critical language through the following statement(s):	*I know there are more red bears than blue bears because I counted five red bears and three blue bears.* *There are ten bears and the red one is the second bear.*
Academic Vocabulary:	Count, greater than, less than, equal to, compare, objects
Technical Vocabulary:	Quantity, numeral, number, number names, zero, represent

*Denotes connection to Personal Financial Literacy (PFL)

Unit Title	Shapes all Around us		Length of Unit	6-7 weeks
Focusing Lens(es)	Identity/Comparison		**Standards and Grade Level Expectations Addressed in this Unit**	MA10-GR.K-S.4-GLE.1 MA10-GR.K-S.4-GLE.2
Inquiry Questions (Engaging-Debatable):	• What things are round? (MA10-GR.K-S.4-GLE.1-IQ.2) • What do round things have in common? (MA10-GR.K-S.4-GLE.1-IQ.2) • What happens when people use their foot to measure objects?			
Unit Strands	Geometry, Measurement and Data, Personal Financial Literacy			
Concepts	Dimension, attributes, compose, shape (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres), position/orientation (above, below, beside, in front of, behind, and next to), comparison, model, compare, describe, order, classify, shape, attributes, length, weight, price, slide, turn, flip			

Generalizations My students will **Understand** that…	Guiding Questions	
	Factual	**Conceptual**
Composing and reorienting basic shapes creates more complex shapes, which reflect the kinds of shapes we find in the real world (MA10-GR.K-S.4-GLE.1-EO.b)	What shapes can be used to create a hexagon?	How do shapes help us describe our world? How can you make one shape with other shapes? (MA10-GR.K-S.4-GLE.1-IQ.4)
Relative position provides the means to document an object's spatial location/position in relation to another object (MA10-GR.K-S.4-GLE.1-EO.a.i)	What words describe an objects relative position? What are the ways to describe where an object is? (MA10-GR.K-S.4-GLE.1-IQ.1)	What words describe an objects relative position? What are the ways to describe where an object is? (MA10-GR.K-S.4-GLE.1-IQ.1)
Defining attributes describe and provide a means for comparing and naming shapes regardless of orientation, size or color (MA10-GR.K-S.4-GLE.1-EO.a)	What is an attribute? What shape has three sides? What are names of basic shapes and what do these shapes look like? What is the difference between a two-dimensional and three-dimensional shape?	How can shapes be described and compared? How are these shapes alike and how are they different? (MA10-GR.K-S.4-GLE.1-IQ.3) How can you use attributes to name shapes?
Measurement requires an attribute such as length, height, weight, or price and allows for comparison, description, classification and ordering of objects (MA10-GR.K-S.4-GLE.2-EO.a.i, a.ii, a.iii, a.iv, b)	What attributes can you measure to place objects in groups or categories? What tools can be used to measure an object?	How do measurable attributes help us compare and order objects?
Informal terms such as long, short, or thin/thick describe the attribute of length (MA10-GR.K-S.4-GLE.2-EO.a.i)	What terms informally describe length?	How is height different from length? (MA10-GR.K-S.4-GLE.2-IQ.2)

When comparing two objects' attributes, such as their lengths, the attribute does not change when sliding, turning or flipping (i.e., rigid transformations) the objects (MA10-GR.K-S.4-GLE.2-EO.a.iii, a.iv) and (MA10-GR.K-S.4-GLE.1-EO.b.i)	What motions can be done to this object so that the length does not change?	How can you tell when one thing is bigger than another? (MA10-GR.K-S.4-GLE.1-IQ.1)

Key Knowledge and Skills: **My students will…**	*What students will know and be able to do are so closely linked in the concept-based discipline of mathematics. Therefore, in the mathematics samples what students should know and do are combined.*

- Identify and correctly names shapes regardless of their orientation including squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres (MA10-GR.K-S.4-GLE.1-EO.a)
- Identify shapes as two-dimensional or three-dimensional (MA10-GR.K-S.4-GLE.1-EO.a.iii)
- Describe shapes using positional words including above, below, beside, in front of, behind, and next to (MA10-GR.K-S.4-GLE.1-EO.a.i)
- Analyze and compare shapes using their attributes in different sizes and orientations, using informal language to describe their similarities, differences, parts, and other attributes (MA10-GR.K-S.4-GLE.1-EO.b.i)
- Model shapes in the world by building shapes from components and drawing shapes (MA10-GR.K-S.4-GLE.1-EO.b.ii)
- Compose simple shapes to form larger shapes (MA10-GR.K-S.4-GLE.1-EO.b.iii)
- Describe several measureable attributes of objects (length, weight, height, price) (MA10-GR.K-S.4-GLE.2-EO.a.i, a.ii)
- Compare the similarities and differences of two objects using several measureable attributes and describe difference (MA10-GR.K-S.4-GLE.2-EO.a.iii, b.i)
- Order two objects by length, weight, height and price (MA10-GR.K-S.4-GLE.2-EO.a.iv)*
- Classify objects into given categories and count the objects in each category and sort the categories by count (MA10-GR.K-S.4-GLE.2-EO.b)

Critical Language: includes the Academic and Technical vocabulary, semantics, and discourse which are particular to and necessary for accessing a given discipline. EXAMPLE: A student in Language Arts can demonstrate the ability to apply and comprehend critical language through the following statement: *"Mark Twain exposes the hypocrisy of slavery through the use of satire."*

A student in _____ can demonstrate the ability to apply and comprehend critical language through the following statement(s):	*The green triangle pattern blocks are on top of the circular table.* *The ice cream cone has a cone shape.* *The stapler is heavier than the pencil.*
Academic Vocabulary:	Positional words (e.g., below, above, in front of, behind, next to, and beside), describe, identify, analyze, building, differences, similarities, create, compare, size, corners, greater than, less than, describe, compare, sort, classify, count, objects, difference, similar
Technical Vocabulary:	Drawing, model, shapes (e.g., sphere, circle, cube, square, triangle, rectangle, cone, cylinder, hexagon), flat, solid, compose, decompose, two-dimensional, three-dimensional, orientation, attributes, vertices, sides, geometry, measureable attributes, length, height, weight, price, category

*Denotes connection to Personal Financial Literacy (PFL)

Unit Title	Tricky Teens and Beyond		Length of Unit	6 weeks
Focusing Lens(es)	Representation Organization	**Standards and Grade Level Expectations Addressed in this Unit**	MA10-GR.K-S.1-GLE.1	
Inquiry Questions (Engaging-Debatable):	• How do numbers change when we get to 10? (MA10-GR.K-S.1-GLE.1-EO.a.iii) • Why do we say 12, twelve, and not ten-two?			
Unit Strands	Counting and Cardinality			
Concepts	Quantity, numerals, number names, models, sequence, patterns, count all, counting on, ones, tens			

Generalizations My students will **Understand** that…	Guiding Questions	
	Factual	**Conceptual**
Numerals, number-names and models represent quantities (MA10-GR.K-S.1-GLE.1-EO.a)	What is a number?	How can you represent a number in a variety of ways? How can you describe a number?
The principles of counting (one-to-one correspondence, stable order of number names, order irrelevance, cardinality and abstraction) extend to numbers beyond ten (MA10-GR.K-S.1-GLE.1.EO.b)	What does it mean to count accurately? How do you know when you have counted accurately? How can you keep a large group of objects organized?	How do you determine how many? Why is it important to stay organized when counting larger quantities?
Flexibility with forward (and backward) counting sequences supports comparison of quantities (MA10-GR.K-S.1-GLE.1-EO.a.i, c)	How do you know if there is more or less?	Why do we compare numbers?
Advanced counting entails "counting on" from a previous count (i.e., continuing to count) rather than a start over or "count all" method (MA10-GR.K-S.1-GLE.1-EO.a, b)	What are different ways to count?	When counting, what does it mean to count from a previous count?
The tens and ones patterns found in the number names and numerals create an easy method for counting larger and larger numbers but the numbers from 11 to 19 have a unique pattern (MA10-GR.K-S.1-GLE.1-EO.a.i)	What number name represents ten plus 3 more? What number name represents two tens plus 3 more? Three tens plus 3 more? What are the number names (in order) from 10-20?	Why do some people call "teen" numbers the "tricky teens"?

Key Knowledge and Skills: My students will…	*What students will know and be able to do are so closely linked in the concept-based discipline of mathematics. Therefore, in the mathematics samples what students should know and do are combined.*

- Count to 100 by ones and tens (MA10-GR.K-S.1-GLE.1-EO.a.i)
- Count forward from a given number (MA10-GR.K-S.1-GLE.1-EO.a.ii)
- Write numbers 0 to 20 as numerals (MA10-GR.K-S.1-GLE.1-EO.a.iii)
- Represent a number of objects with a written numeral 0 to 20 (MA10-GR.K-S.1-GLE.1-EO.a.iii)
- Count large quantities of objects (more than ten) by arranging the items in a line or rectangular array to ensure accurate and efficient counting (MA10-GR.K-S.1-GLE.1-EO.b.ii)
- Count out a specified number of objects for quantities from 1 to 20 (MA10-GR.K-S.1-GLE.1-EO.b.ii)
- Compare groups of objects as either greater than, less than or equal to the number of objects in another group (MA10-GR.K-S.1-GLE.1-EO.c.i)

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A student in _____ can demonstrate the ability to apply and comprehend critical language through the following statement(s):	*I counted seventeen bears, there are seventeen bears on the table. You can rearrange them but there will still only be seventeen bears on the table.*
Academic Vocabulary:	Count, greater than, less than, equal to, compare, objects, represent, quantity, accurate/accurately
Technical Vocabulary:	Numeral, number, cardinal numbers (e.g., first, second, third), number names, zero, tens, ones,

Unit Title	Breaking apart is hard to do		Length of Unit	5 weeks
Focusing Lens(es)	Relationships	**Standards and Grade Level Expectations Addressed in this Unit**	MA10-GR.K-S.1-GLE.2	
Inquiry Questions (Engaging-Debatable):	• Why are there multiple ways to break apart a number? • How many ways can you separate a group of ten objects? (MA10-GR.K-S.1-GLE.2-IQ.2)			
Unit Strands	Operations and Algebraic Thinking, Number and Operations in Base Ten			
Concepts	Compose, decompose, ones, tens, equation, model (e.g., drawing), place value, combine/join, break apart/separate			

Generalizations My students will **Understand** that…	Guiding Questions	
	Factual	**Conceptual**
Composing/decomposing refers to the ability to combine/break apart a number or set of numbers to produce another number and to reverse the process (MA10-GR.K-S.1-GLE.2-EO.aiii, c)	What happens when two quantities are combined? (MA10-GR.K-S.1-GLE.2-IQ.1) What happens when a group of objects is separated into different groups? (MA10-GR.K-S.1-GLE.2-IQ.2) What are different ways of showing how to combine and break apart numbers?	How can a number be combined or broken apart in multiple ways?
Quantities, broken apart (separated/decomposed) to form subgroups and combined (joined/composed) in multiple ways, show relationships between three numbers (MA10-GR.K-S.1-GLE.2-EO.aiii, a.v)	What number when combined with 2 makes ten? What other numbers work together to make 10?	How can you tell if three numbers have a relationship (combined or broken apart)?
Models of ten ones and additional ones allow the composing and decomposing of numbers 11-19 (MA10-GR.K-S.1-GLE.2-EO.c)	What number is made up of ten ones and six more ones?	Why is it helpful to break apart "teen" numbers into ten ones and additional ones?

Key Knowledge and Skills: My students will…	*What students will know and be able to do are so closely linked in the concept-based discipline of mathematics. Therefore, in the mathematics samples what students should know and do are combined.*

- Find the number that make 10 when added to a number from 1 to 9 (MA10-GR.K-S.1-GLE.2-EO.a.iv)
- Decompose numbers less than or equal to 10 in multiple ways and show and record the decomposition by drawings and equations (MA10-GR.K-S.1-GLE.2-EO.a.iii)
- Compose numbers to create 10 when given a number from 1 to 9 (MA10-GR.K-S.1-GLE.2-EO.aiv)
- Compose and decompose numbers from 11 to 19 into tens and ones and record the compositions and decomposition using drawings and equations (MA10-GR.K-S.1-GLE.2-EO.c)

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A student in _____ can demonstrate the ability to apply and comprehend critical language through the following statement(s):	*I have eight and I need two more to make ten.* *Five can be broken apart as three and two.*
Academic Vocabulary:	Represent, count, less than, greater than, equal to
Technical Vocabulary:	Compose, decompose, number names, place value, tens, ones

Unit Title	Put it Together and Take it Apart		Length of Unit	6 weeks
Focusing Lens(es)	Representation	**Standards and Grade Level Expectations Addressed in this Unit**	MA10-GR.K-S.1-GLE.2	
Inquiry Questions (Engaging-Debatable):	• Can any three numbers be put together to make a relationship? (MA10-GR.K-S.1-GLE.2-IQ.1) • How do you know when to put things together and when to separate them?			
Unit Strands	Operations and Algebraic Thinking, Personal Financial Literacy			
Concepts	Compose, decompose, addition, subtraction, model (objects, mental images, drawings, sounds, acting out, verbal explanations, expressions, equations), word problems, symbols, join, put together, add to, separate, take apart, taking from			

Generalizations My students will **Understand** that…	Guiding Questions	
	Factual	**Conceptual**
Addition and subtraction problems use numerals, the addition symbol, the subtraction symbol, and the equal symbol to form an equation (+, -, =) (MA10-GR.K-S.1-GLE.2EO.a.i)	What symbol shows addition? What symbol shows subtraction?	Why is the = the correct symbol between 2+3 = 4+1?
Strategies for solving addition and subtraction word problems include acting out with objects and illustrating with drawings; both can be used to justify/explain an answer (MA10-GR.K-S.1-GLE.2-EO.a.ii, a.iii, a.iv)	What are ways to represent addition and subtraction problems?	How does modeling the actions of a world problem help to solve it?
The operations of addition and subtraction describe actions in the world such as joining, putting together, adding to, separating, taking apart and taking from (MA10-GR.K-S.1-GLE.2-EO.a)	What is the difference between addition and subtraction? What is an example of a problem that can be solved by adding? What is an example of a problem that can be solved by subtraction?	How is a "joining" problem different from a "separating" problem?

Key Knowledge and Skills: My students will…	*What students will know and be able to do are so closely linked in the concept-based discipline of mathematics. Therefore, in the mathematics samples what students should know and do are combined.*

- Represent addition and subtraction in a variety of ways (with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions or equations) (MA10-GR.K-S.1-GLE.2-EO.a.i)
- Solve addition and subtraction word problems by adding and subtracting within 10 (MA10-GR.K-S.1-GLE.2-EO.a.ii)
- Model and solve addition and subtraction problems within the number 10 using objects such as coins and drawings (MA10-GR.K-S.1-GLE.2-EO.a.v)*
- Fluently add and subtract within 5 (MA10-GR.K-S.1-GLE.2-EO.b)

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A student in _____ can demonstrate the ability to apply and comprehend critical language through the following statement(s):	*I joined 5 red bears with 3 brown bears and I know I have 8 bears, which shows that 5 plus 3 equals 8.*
Academic Vocabulary:	count, less than, greater than, equal to, the same as, groups, all together
Technical Vocabulary:	Represent, compose, decompose, number names, addition, subtraction, plus, minus, addition symbol (+), subtraction symbol (-), equal symbol (=), take away, take apart, combine, put together

* Denotes connection to Personal Financial Literacy (PFL)