Trinity Area School District
Template for Curriculum Mapping

Course: Math **Grade: K** **Designer(s): Math Committee**	**Overview of Course:**

Overarching Big Ideas, Enduring Understandings, and Essential Questions

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

Big Idea (A Big Idea is typically a noun and always transferable within and among content areas.)	**Standard(s) Addressed** (What Common Core Standard(s) and/or PA Standard(s) addresses this Big Idea?)	**Enduring Understanding(s)** (SAS refers to Enduring Understandings as "Big Ideas." EUs are the understandings we want students to carry with them after they graduate. EUs will link Big Ideas together. Consider having only one or two EUs per Big Idea.)	**Essential Question(s)** (Essential Questions are broad and open ended. Sometimes, EQs can be debated. A student's answer to an EQ will help teachers determine if he/she truly understands. Consider having only one or two EQs per Enduring Understanding.)
• Order	**Common Core Standards:** K.CC.1 Count to 100 by ones and by tens. K.CC.2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1). **PA Standards:** 2.11.K.A. Order whole numbers, 0 to 20 with least to greatest value.	1. Numbers are counted in a specific sequence.	1. Why do numbers need to be in a sequential order? What would happen if numbers were out of order?
• Correlations	**Common Core Standards:** K.CC.3 Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20	1. There is a unique symbol that goes with each number word. 2. Numerals represent a set of objects.	1. When can you use number symbols to tell about a set of objects? 2. How does counting tell how many?

	(with 0 representing a count of no objects). K.CC.4 Understand the relationship between numbers and quantities; connect counting to cardinality. a. 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. b. 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. c. Understand that each successive number name refers to a quantity that is one larger. K.CC.5 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. K.CC.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, by using matching and counting strategies. • Include groups with up to ten objects. K.CC.7 Compare two numbers between 1 and 10 presented as written numerals. **PA Standards:** 2.1.K.A. Demonstrate the relationship between numbers and quantities, including rote counting, one-to-one correspondence, and counting by tens, and comparing values of whole numbers up to 20.	3. Counting tells how many are in a set not matter which order the objects are counted or arranged. 4. The last number said when counting a set is the total. 5. Counting is cumulative. 6. In a pair of numbers, the number that shows more is greater. The number that shows fewer is less. If two numbers are exactly the same amount, they are equal.	3. When can you use number symbols to tell about a set of objects? 4. How can you determine if a number is greater than, less than, or equal to another number?

	2.1.K.B. Represent equivalent forms of the same number through the use of pictures and concrete objects (including penny, nickel, and dime), up to 20. 2.1.K.C. Use concrete objects, drawings, diagrams or models to group objects into sets of ten; separate objects in to equal parts. 2.8.K.A. Use concrete objects to demonstrate understanding of equal and not equal.		
• Production	**Common Core Standards** K.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, 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. K.G.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes. K.G.6 Compose simple shapes to form larger shapes. For example, "Can you join these two triangles with full sides touching to make a rectangle?" **PA Standards** 2.1.K.D. Use concrete objects to demonstrate regrouping ones to tens, with adult assistance.	1. There is more than one way to show a number. 2. Numbers can be decomposed in different ways. 3. Two-dimensional shapes have width and length. 4. Three-dimensional or solid figures have length, width, and height. 5. Many everyday objects closely approximate standard geometric solids. 6. Solid figures can be compared in different ways. 7. Some solid figures can be compared by their flat surfaces and vertices. 8. The flat surfaces of many solid figures have specific shapes. 9. Shapes can be formed and drawn using knowledge of their specific attributes. 10. Shapes can be combined to make other shapes.	1. Why can you show the same number in different ways? 2. How can number decompositions be represented? 3. How can decomposing numbers help build better number sense? 4. How do you know when shapes are exactly the same? 5. What do you look for when you describe and match shapes? 6. What kinds of figures roll, slide, and stack? 7. How can you describe flat surfaces of solids? 8. What do you need to know about a shape's attributes in order to recreate that shape? 9. How can you use smaller shapes to make a larger shape? 10. How can you use smaller shapes to make a different shape?
• Relationships	**Common Core Standards:** K.OA.1 Represent addition and subtraction with	1. Addition is putting together and adding to.	1. How can you represent addition and subtraction scenarios in a variety of

	objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. • Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.) K.OA.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. K.OA.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). K.OA.4 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. K.OA.5 Fluently add and subtract within 5. **PA Standards:** 2.1.K.F. Use concrete objects to solve addition and subtraction problems. 2.2.K.B. Represent and explain the results of adding and subtracting sets of objects up to and including ten, using math vocabulary.	2. Subtraction is taking apart and taking from. 3. Addition and subtraction scenarios can be represented in a variety of ways. 4. There is more than one way to show a number. 5. .Numbers can be decomposed in different ways. 6. Different combinations of number pairs can produce the same sum. 7. A knowledge of the base ten system is key to a strong foundation in both addition and subtraction. 8. Automaticity of addition and subtraction facts is an important foundation for the building of more complex mathematical concepts.	ways? 2. Why can you show the same number in different ways? 3. How can number decompositions be represented? 4. How can decomposing numbers help build better number sense? 5. How can you use base ten knowledge to fluently solve both addition and subtraction scenarios? **6.** Why is automaticity of basic addition and subtraction facts important?
○ Characteristics	**Common Core Standards:** K.MD.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. K. MD.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.	1. Objects can be compared and ordered by length, capacity, and weight. 2. Measurement is a process of comparing a unit to the object being measured. 3. Attributes can be used to compare objects. 4. Attributes such as color, shape, or size can be used to sort the same set of objects in different ways.	1. How can you decide which object is larger and which object is smaller? 2. How can you compare and order the length of three objects? 3. How can you tell if a container holds the same or more or less than another? 4. How can you compare the weights of two objects? 5. What does looking at the color, shape, and size of objects help you know

	K.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. Limit category counts to be less than or equal to 10. K.G.1 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. K.G.2 Correctly name shapes regardless of their orientations or overall size. K.G.3 Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid"). K.G.4 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). **PA Standards:** 2.3.K.A. Identify similarities and differences in measurement of objects. 2.9.K.A. Identify and describe common 2-dimensional shapes. 2.6.K.A. Gather data in response to questions posed to learners. 2.6.K.B. Organize and display objects by one or more attributes. 2.6.K.C. Answer questions based on data shown on graphs or charts. 2.6.K.D. Answer comparative questions based on representations of data. 2.6.K.E. Draw conclusions about information shown on a graph or chart.	5. A set of objects can be sorted according to a combination of attributes. **6.** Data can be collected and represented in various ways. 7. The position of objects can be determined in relation to surrounding objects and described using words. 8. Basic shapes can be used to describe objects in the environment. 9. Shapes have attributes. 10. Two-dimensional shapes are flat. **11.** Three dimensional shapes are solid.	about them? 6. What are some ways you can sort objects? 7. In order to make a group of objects that are exactly alike in two ways, what should you notice about the objects? 8. How does matching objects in two groups help you know which group has more, fewer, or as many as the other group? 9. How can data be represented? 10. What data can you gain from looking at a graph? 11. How can you describe where something is using the words, inside, and outside, over, under, and on, top, middle, and bottom, or left and right. 12. How can you describe objects in the environment using shapes? 13. How can you tell if a shape is a rectangle, square, circle, triangle, or hexagon? 14. How can you tell if a shape is flat or solid?
○ Patterns	PA Standards: 2.8.K.C. Recognize, describe, extend, replicate	1. Patterns are made up of units that repeat in a predictable way.	1. How can you tell what comes next in a pattern?

	and transfer number and geometric patterns. 2.1.K.E. Recognize even and odd number patterns.	2. Patterns can be alike or different depending on how they repeat. 3. Numbers can be even or odd.	2. What do you need to know about a pattern in order to extend the pattern? 3. How can you tell if two patterns are alike or different? 4. How can you determine if a number is even or odd?
○			

Big Ideas, Enduring Understandings, and Essential Questions Per Unit of Study
(These do NOT "spiral" throughout the entire curriculum, but are specific to each unit.)

Month of Instruction (In what month(s) will you teach this unit?)	**Title of Unit**	**Big Idea(s)** (A Big Idea is a noun and always transferable within and among content areas.)	**Standard(s) Addressed** (What Common Core Standard(s) and/or PA Standard(s) addresses this Big Idea?)	**Enduring Understanding(s)** (SAS refers to Enduring Understandings as "Big Ideas." EUs are the understandings we want students to carry with them after they graduate. EUs will link Big Ideas together. Consider having only one or two EUs per Big Idea.)	**Essential Question(s)** (Essential Questions are broad and open ended. Sometimes, EQs can be debated. A student's answer to an EQ will help teachers determine if he/she truly understands. Consider having only one or two EQs per Enduring Understanding.)	**Common Assessment(s)*** (What assessments will all teachers of this unit use to determine if students have answered the Essential Questions?)	**Common Resource(s)* Used** (What resources will all teachers of this unit use to help students understand the Big Ideas?)
Sept.	Counting and Cardinality (0 – 10) and Graphing	Characteristics Order Correlations	*Counting and Cardinality* **Common Core Standards** K.CC.2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1). K.CC.3 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).	*Counting and Cardinality* 1. Numbers are counted in a specific sequence. 2. There is a unique symbol that goes with each number word. 3. Numerals represent a set of objects.	*Counting and Cardinality* 1. Why do numbers need to be in a sequential order? What would happen if numbers were out of order? 2. When can you use number symbols to tell about a set	*Topics 1, 2, 3, and 4 Tests* *Topics 1-4 Benchmark Tests*	*Counting and Cardinality* *Text *Manipulatives *Online Resources *Vocabulary: -one -two -three -count

			K.CC.4 Understand the relationship between numbers and quantities; connect counting to cardinality. d. 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. e. 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. f. Understand that each successive number name refers to a quantity that is one larger. K.CC.5 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. K.CC.6 Identify whether the	4. Counting tells how many are in a set not matter which order the objects are counted or arranged. 5. The last number said when counting a set is the total. 6. Counting is cumulative. 7. In a pair of numbers, the number that shows more is greater. The number that shows fewer is less. If two numbers are exactly the same amount, they are equal. *<u>Graphing</u>* 1. Attributes can be used to compare objects. **2.** Data can be collected and represented in various ways.	of objects? 3. How does counting tell how many? 4. When can you use number symbols to tell about a set of objects? 5. How can you determine if a number is greater than, less than, or equal to another number? *<u>Graphing</u>* 1. What are some ways you can sort objects? 2. How can data be represented? 3. What data can you gain from looking at a graph?		-number -four -five -zero -whole -part -more/greater -less/fewer -same as -1 more -2more -1 fewer -2 fewer -counting on -total -survey -graph -most -fewest

			number of objects in one group is greater than, less than, or equal to the number of objects in another group, by using matching and counting strategies. • Include groups with up to ten objects. K.CC.7 Compare two numbers between 1 and 10 presented as written numerals. **PA Standards:** 2.11.K.A. Order whole numbers, 0 to 20 with least to greatest value. 2.1.K.A. Demonstrate the relationship between numbers and quantities, including rote counting, one-to-one correspondence, and counting by tens, and comparing values of whole numbers up to 20. 2.1.K.B. Represent equivalent forms of the same number through the use of pictures and concrete objects (including penny, nickel, and dime), up to 20. 2.1.K.C. Use concrete objects, drawings, diagrams or models to group objects into sets of ten; separate objects in to equal parts. 2.8.K.A. Use concrete objects to demonstrate understanding of				

			equal and not equal. *Graphing* **Common Core Standards:** K.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. Limit category counts to be less than or equal to 10. **PA Standards:** 2.6.K.A. Gather data in response to questions posed to learners. 2.6.K.B. Organize and display objects by one or more attributes. 2.6.K.C. Answer questions based on data shown on graphs or charts. 2.6.K.D. Answer comparative questions based on representations of data. 2.6.K.E. Draw conclusions about information shown on a graph or chart.				
Oct.	Counting and Cardinality (Larger Numbers)	Order Correlations Production Patterns	*Counting and Cardinality* **Common Core Standards:** K.CC.1 Count to 100 by ones and by tens. K.CC.2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1). K.CC.3 Write numbers from 0 to 20. Represent a number of objects with a written numeral	*Counting and Cardinality* 1. Numbers are counted in a specific sequence. 2. There is a unique symbol that goes with each number word. 3. Numerals represent a set of objects.	*Counting and Cardinality* 1. Why do numbers need to be in a sequential order? What would happen if numbers were out of order? 2. When can you use number symbols to tell about a set	*Topics 5 and 6 Tests*	*Counting and Cardinality* *Text *Manipulatives *Online Resources *Vocabulary: -eleven -twelve -thirteen -fourteen

			0-20 (with 0 representing a count of no objects). K.CC.4 Understand the relationship between numbers and quantities; connect counting to cardinality. a. 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. b. 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. c. Understand that each successive number name refers to a quantity that is one larger. K.CC.5 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,	4. Counting tells how many are in a set not matter which order the objects are counted or arranged. 5. The last number said when counting a set is the total. 6. Counting is cumulative. 7. In a pair of numbers, the number that shows more is greater. The number that shows fewer is less. If two numbers are exactly the same amount, they are equal. 8. There is more than one way to show a number. 9. Numbers can be decomposed in different ways. 10. Patterns are made up of units that repeat in a predictable way. 11. Patterns can be alike or different depending on how they repeat.	of objects? 3. How does counting tell how many? 4. When can you use number symbols to tell about a set of objects? 5. How can you determine if a number is greater than, less than, or equal to another number? 6. Why can you show the same number in different ways? 7. How can number decompositions be represented? 8. How can decomposing numbers help build better number sense? 9. How can you tell what comes next in a pattern? 10. What do you need to know about a pattern in order to extend the pattern? How can you determine if a number is even or odd?		-fifteen -sixteen -seventeen -eighteen -nineteen -twenty -odd -even -hundred chart -row -column -count by 10's -skip counting

			count out that many objects. K.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, 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. **PA Standards:** 2.11.K.A. Order whole numbers, 0 to 20 with least to greatest value. 2.1.K.A. Demonstrate the relationship between numbers and quantities, including rote counting, one-to-one correspondence, and counting by tens, and comparing values of whole numbers up to 20. 2.1.K.B. Represent equivalent forms of the same number through the use of pictures and concrete objects (including penny, nickel, and dime), up to 20. 2.1.K.C. Use concrete objects, drawings, diagrams or models to group objects into sets of ten; separate objects in to equal parts. 2.8.K.A. Use concrete objects to demonstrate understanding of equal and not equal.	12. Numbers can be even or odd.			

			2.1.K.D. Use concrete objects to demonstrate regrouping ones to tens, with adult assistance. 2.8.K.C. Recognize, describe, extend, replicate and transfer number and geometric patterns. 2.1.K.E. Recognize even and odd number patterns.				
Nov.	Addition	Production Relationships	*Addition* **Common Core Standards:** K.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, 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. K.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. • Drawings need not show details, but should show the mathematics in the problem. (This applies	*Addition* 1. There is more than one way to show a number. 2. Numbers can be decomposed in different ways. 3. Addition is putting together and adding to. 4. Addition and subtraction scenarios can be represented in a variety of ways. 5. There is more than one way to show a number. 6. .Numbers can be decomposed in different ways. 7. Different combinations of number pairs can produce the same sum. 8. A knowledge of the	*Addition* 1. Why can you show the same number in different ways? 2. How can number decompositions be represented? 3. How can decomposing numbers help build better number sense? 4. How can you represent addition and subtraction scenarios in a variety of ways? 5. Why can you show the same number in different ways? 6. How can number decompositions be represented? 7. How can	*Topics 7*	*Addition* *Text *Manipulatives *Online Resources *Vocabulary: -number story -join -in all -altogether -add -plus sign -equal sign -sum -addition sentence -decomposition -addition facts -base ten

			wherever drawings are mentioned in the Standards.) K.OA.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. K.OA.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). K.OA.4 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. K.OA.5 Fluently add and subtract within 5. **PA Standards:** 2.1.K.D. Use concrete objects to demonstrate regrouping ones to tens, with adult assistance. 2.1.K.F. Use concrete objects to solve addition and subtraction problems. 2.2.K.B. Represent and explain the results of adding and subtracting sets of objects up to and including ten, using math vocabulary.	base ten system is key to a strong foundation in both addition and subtraction. Automaticity of addition and subtraction facts is an important foundation for the building of more complex mathematical concepts.	decomposing numbers help build better number sense? 8. How can you use base ten knowledge to fluently solve both addition and subtraction scenarios? 9. Why is automaticity of basic addition and subtraction facts important?		
Dec.	Subtraction	Relationships	*Subtraction*	*Subtraction*	*Subtraction*	*Topic 8 Test*	*Subtraction*

			Common Core Standards: K.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. • Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.) K.OA.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. K.OA.5 Fluently add and subtract within 5. **PA Standards:** 2.1.K.F. Use concrete objects to solve addition and subtraction problems. 2.2.K.B. Represent and explain the results of adding and subtracting sets of objects up to and including ten, using math vocabulary.	1. Subtraction is taking apart and taking from. 2. Addition and subtraction scenarios can be represented in a variety of ways. 3. A knowledge of the base ten system is key to a strong foundation in both addition and subtraction. Automaticity of addition and subtraction facts is an important foundation for the building of more complex mathematical concepts.	1. How can you represent addition and subtraction scenarios in a variety of ways? 2. How can you use base ten knowledge to fluently solve both addition and subtraction scenarios? Why is automaticity of basic addition and subtraction facts important?	*Topics 5-8 Benchmark Test*	*Text *Manipulatives *Online Resources *Vocabulary: (same as above for subtraction)
Jan.	More Addition and	Production Relationships	*Addition* **Common Core Standards:**	*Addition* 9. There is more than	*Addition* 10. Why can you	*Topic 9 Test*	*Addition* *Text

	Subtraction		K.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, 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. K.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. • Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.) K.OA.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. K.OA.3 Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using	one way to show a number. 10. Numbers can be decomposed in different ways. 11. Addition is putting together and adding to. 12. Addition and subtraction scenarios can be represented in a variety of ways. 13. There is more than one way to show a number. 14. .Numbers can be decomposed in different ways. 15. Different combinations of number pairs can produce the same sum. 16. A knowledge of the base ten system is key to a strong foundation in both addition and subtraction. 17. Automaticity of addition and subtraction facts is an important foundation for the building of more	show the same number in different ways? 11. How can number decompositions be represented? 12. How can decomposing numbers help build better number sense? 13. How can you represent addition and subtraction scenarios in a variety of ways? 14. Why can you show the same number in different ways? 15. How can number decompositions be represented? 16. How can decomposing numbers help build better number sense? 17. How can you use base ten knowledge to fluently solve both addition and subtraction scenarios?		*Manipulatives *Online Resources *Vocabulary: -number story -join -in all -altogether -add -plus sign -equal sign -sum -addition sentence -decomposition -addition facts -base ten <u>*Subtraction*</u> *Text *Manipulatives *Online Resources *Vocabulary: (same as above for subtraction)

			objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1). K.OA.4 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. K.OA.5 Fluently add and subtract within 5. **PA Standards:** 2.1.K.D. Use concrete objects to demonstrate regrouping ones to tens, with adult assistance. 2.1.K.F. Use concrete objects to solve addition and subtraction problems. 2.2.K.B. Represent and explain the results of adding and subtracting sets of objects up to and including ten, using math vocabulary. *<u>Subtraction</u>* **Common Core Standards:** K.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. • Drawings need not show details, but should show the	complex mathematical concepts. *<u>Subtraction</u>* 1. Subtraction is taking apart and taking from. 2. Addition and subtraction scenarios can be represented in a variety of ways. 3. A knowledge of the base ten system is key to a strong foundation in both addition and subtraction. 4. Automaticity of addition and subtraction facts is an important foundation for the building of more complex mathematical concepts.	18. Why is automaticity of basic addition and subtraction facts important? *<u>Subtraction</u>* 1. How can you represent addition and subtraction scenarios in a variety of ways? 2. How can you use base ten knowledge to fluently solve both addition and subtraction scenarios? Why is automaticity of basic addition and subtraction facts important?		

			mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.) K.OA.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. K.OA.5 Fluently add and subtract within 5. **PA Standards:** 2.1.K.F. Use concrete objects to solve addition and subtraction problems. 2.2.K.B. Represent and explain the results of adding and subtracting sets of objects up to and including ten, using math vocabulary.				
Feb.	Composing and Decomposing Numbers	Production Relationships	*<u>Composing and Decomposing Numbers</u>* **Common Core Standards:** K.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, 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	*<u>Composing and Decomposing Numbers</u>* 1. There is more than one way to show a number. 2. Numbers can be decomposed in different ways. 3. Addition is putting together and adding to. 4. Addition and subtraction	*<u>Composing and Decomposing Numbers</u>* 1. Why can you show the same number in different ways? 2. How can number decompositions be represented? 3. How can decomposing numbers help build better	*Topics 10 and 11 Tests*	*<u>Addition</u>* *Text *Manipulatives *Online Resources *Vocabulary: (same as above for addition) *<u>Subtraction</u>* *Text *Manipulatives *Online Resources

			ones. K.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. • Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.) K.OA.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. K.OA.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). K.OA.4 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.	scenarios can be represented in a variety of ways. 5. There is more than one way to show a number. 6. .Numbers can be decomposed in different ways. 7. Different combinations of number pairs can produce the same sum. 8. A knowledge of the base ten system is key to a strong foundation in both addition and subtraction. Automaticity of addition and subtraction facts is an important foundation for the building of more complex mathematical concepts. *Subtraction* 1. Subtraction is taking apart and taking from. 2. Addition and subtraction scenarios can be represented in a variety of ways. 3. A knowledge of the	number sense? 4. How can you represent addition and subtraction scenarios in a variety of ways? 5. Why can you show the same number in different ways? 6. How can number decompositions be represented? 7. How can decomposing numbers help build better number sense? 8. How can you use base ten knowledge to fluently solve both addition and subtraction scenarios? 9. Why is automaticity of basic addition and subtraction facts important? *Subtraction* 1. How can you represent addition and subtraction		*Vocabulary: -left -separate -take away -minus sign -subtract -difference -subtraction sentence

			K.OA.5 Fluently add and subtract within 5. **PA Standards:** 2.1.K.D. Use concrete objects to demonstrate regrouping ones to tens, with adult assistance. 2.1.K.F. Use concrete objects to solve addition and subtraction problems. 2.2.K.B. Represent and explain the results of adding and subtracting sets of objects up to and including ten, using math vocabulary. *Subtraction* **Common Core Standards:** K.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. • Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.) K.OA.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g.,	base ten system is key to a strong foundation in both addition and subtraction. 4. Automaticity of addition and subtraction facts is an important foundation for the building of more complex mathematical concepts.	scenarios in a variety of ways? 2. How can you use base ten knowledge to fluently solve both addition and subtraction scenarios? 3. Why is automaticity of basic addition and subtraction facts important?		

			by using objects or drawings to represent the problem. K.OA.5 Fluently add and subtract within 5. **PA Standards:** 2.1.K.F. Use concrete objects to solve addition and subtraction problems. 2.2.K.B. Represent and explain the results of adding and subtracting sets of objects up to and including ten, using math vocabulary.				
March	Measurement	Characteristics	*Measurement* **Common Core Standards:** K.MD.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. K. MD.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. **PA Standards:** 2.3.K.A. Identify similarities and differences in measurement of objects.	*Measurement* 1. Objects can be compared and ordered by length, capacity, and weight. 2. Measurement is a process of comparing a unit to the object being measured.	*Measurement* 1. How can you decide which object is larger and which object is smaller? 2. How can you compare and order the length of three objects? 3. How can you tell if a container holds the same or more or less than another? 4. How can you compare the weights of two objects?	*Topic 12 Test* *Topics 9-12 Benchmark Tests*	*Measurement* *Text *Manipulatives *Online Resources *Vocabulary: -large -larger -largest -small -smaller -smallest -medium -big -bigger -biggest -size -as long as (same length as) -as short as -as tall as -longer than

							-shorter than -taller than -longest -shortest -tallest -measure -estimate -check -holds more -holds less -empty -full -most -least -about the same -heavier -lighter -balance -weight -weighs more -weighs less
April	Sorting and Classifying and Position and Location	Characteristics	*Sorting and Classifying* **Common Core Standards:** K.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. Limit category counts to be less than or equal to 10. **PA Standards:** 2.6.K.B. Organize and display objects by one or more attributes. *Position and Location*	*Sorting and Classifying* 1. Attributes can be used to compare objects. 2. Attributes such as color, shape, or size can be used to sort the same set of objects in different ways. 3. A set of objects can be sorted according to a combination of	*Sorting and Classifying* 1. What are some ways you can sort objects? 2. In order to make a group of objects that are exactly alike in two ways, what should you notice about the objects? *Position and Location* How can you describe where	*Topic 13 Test*	*Sorting and Classifying* *Text *Manipulatives *Online Resources *Vocabulary: -same -different -sort -does not belong -sorting rule *Position and*

			Common Core Standards: K.G.1 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.	attributes. *Position and Location* The position of objects can be determined in relation to surrounding objects and described using words.	something is using the words, inside, and outside, over, under, and on, top, middle, and bottom, or left and right.		*Location* *Text *Manipulatives *Online Resources *Vocabulary: -inside -outside -over -under -on -top -middle -bottom -before -after -left -right
May	Geometry	Production Characteristics	*Geometry* **Common Core Standards** K.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. Limit category counts to be less than or equal to 10. K.G.1 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. K.G.2 Correctly name shapes	*Geometry* 1. Two-dimensional shapes have width and length. 2. Three-dimensional or solid figures have length, width, and height. 3. Many everyday objects closely approximate standard geometric solids. 4. Solid figures can be compared in different ways. 5. Some solid figures	*Geometry* 1. How do you know when shapes are exactly the same? 2. What do you look for when you describe and match shapes? 3. What kinds of figures roll, slide, and stack? 4. How can you describe flat surfaces of solids? 5. What do you need to know about a shape's attributes	*Topics 14, 15, and 16 Tests* *Topics 13-16 Benchmark Test*	*Geometry* *Text *Manipulatives *Online Resources *Vocabulary: -square -rectangle -circle -triangle -hexagon -same size -same shape -sphere -cube -cylinder -corner

			regardless of their orientations or overall size. K.G.3 Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid"). K.G.4 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). K.G.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes. K.G.6 Compose simple shapes to form larger shapes. For example, "Can you join these two triangles with full sides touching to make a rectangle?" **PA Standards:** 2.9.K.A. Identify and describe common 2-dimensional shapes.	can be compared by their flat surfaces and vertices. 6. The flat surfaces of many solid figures have specific shapes. 7. Shapes can be formed and drawn using knowledge of their specific attributes. 8. Shapes can be combined to make other shapes. 9. Basic shapes can be used to describe objects in the environment. 10. Shapes have attributes. 11. Two-dimensional shapes are flat. Three dimensional shapes are solid.	in order to recreate that shape? 6. How can you use smaller shapes to make a larger shape? 7. How can you use smaller shapes to make a different shape? 8. How can you describe objects in the environment using shapes? 9. How can you tell if a shape is a rectangle, square, circle, triangle, or hexagon? How can you tell if a shape is flat or solid?		-edge -side -roll -stack -slide -flat surface
June	Review of Previously Taught Units	Order Correlations Production Relationships Characteristics Patterns	All Common Core and PA Standards	All Essential Understandings	All Essential Questions	*TBA*	*Text *Manipulatives *Online Resources

***** Some teachers may need to think about the assessments and resources used in order to determine the Big Ideas, Enduring Understandings, and Essential Questions embedded in their courses. At this point in your curriculum mapping, you might want to ignore the "Common Assessments" and "Common Resources Used" columns. However, you may use them if you wish.