

[KY Math Standards 1st grade](#)[FCPS 1st Grade Trajectory](#)[1st Unit 2 Google Link](#)[First grade Priority Content](#)

Unit Title: Parts of Ten and Number Sequences: Measure, compare and partition	Estimated Time Frame: 38 - 42 days
Essential Standards: 1.OA.6, 1.NBT.1, 1.NBT.2, 1.NBT.3, 1.MD.1, 1.MD.2, 1.G.1 , <i>Supporting Standards: 1.OA.1, 1.OA.3, 1.NBT.6, 1.MD.3, 1.G.2</i>	
Big Idea(s) CRA explanations for 1st grade Unit 2	
<p>NUMBERS: The set of real numbers is infinite and each real number can be associated with a unique point on the number line.</p> <p>COMPARISON: Numbers can be compared by their relative values. Measures can be compared by their relative values.</p> <p>OPERATION, MEANINGS AND RELATIONSHIPS: The same number sentence (e.g. $12-4=8$) can be associated with different concrete or real-world situations, AND different number sentences (e.g. $2+4=6$, $6-4=2$, etc.) can be associated with the same concrete or real-world situation.</p> <p>ESTIMATION: Measurements can be approximated using known referents as the unit in the measurement process.</p> <p>MEASUREMENT: Some attributes of objects are measurable and can be quantified using unit amounts</p>	
Essential Questions:	Common Misconceptions:

How are addition and subtraction related?

How can numbers be put together and taken apart to solve problems?

How do models help to solve math problems?

How can the answer to one problem be used as information needed to solve another problem?

Why measure the length of an object?

When do we measure things in our daily life and how?

How do you use time in your daily life?

Why do we measure time?

- Expressions vs. equations (1.OA.7)
- Forward/backward counting confusion (1.OA.6, 1.NBT.1)
- Fluency includes all numbers *within* 10, not just to 10 (1.OA.6)
- Counting on to/back from a number builds from the quantity of a number (ex. We don't just "put the big number in your head") (1.OA.6)
- When counting forward/backward, crossing the decuple poses a challenge (ex. 31, 30, 29 - going from 30's to 20's and vice versa) (1.NBT.1)
- Numeral and digit reversals (ex. 17/71, 12/20) (1.NBT.1)
- Students who still need to count by 1's vs. just knowing the group of ten (1.NBT.2)
- Directionality of the symbols $<$, $>$ (1.NBT.3)
- When comparing bare numbers, students not understanding the true quantity (1.NBT.3)
- Measurement Confusion: not understanding correct measurement strategies, not using units appropriately (1.MD.1, 1.MD.2)
- Squares cannot be rectangles (1.G.1)
- Confusion in composing shapes multiple ways (1.G.1, 1.G.2)

Standards for Mathematical Practice (bolded practices are emphasized in this unit)	Kentucky Interdisciplinary Literacy Practices	
<p>MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics. MP.5. Use appropriate tools strategically. MP.6. Attend to precision. MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning.</p>	<ol style="list-style-type: none"> 1. Recognize that text is anything that communicates a message. 2. Employ, develop, and refine schema to understand and create text. 3. View literacy experiences as transactional, interdisciplinary and transformational. 4. Utilize receptive and expressive language arts to better understand self, others, and the world. 5. Apply strategic practices, with scaffolding and then independently, to approach new literacy tasks. 6. Collaborate with others to create new meaning. 7. Utilize digital resources to learn and share with others. 8. Engage in specialized, discipline specific literacy practices. 9. Apply high level cognitive processes to think deeply and critically about text. 10. Develop a literacy identity that promotes lifelong learning. 	
Essential Standards: KAS Content Standards CRA explanations for 1st grade Unit 2	Prerequisite Skills & Essential Vocabulary	Sample Learning Intentions* & Sample Success Criteria*
<p>KY.1.OA.6 Add and subtract within 20. a. Fluently add and subtract within 10. b. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making 10; decomposing a number leading to a 10; using the relationship between addition and subtraction; creating equivalent but easier or known sums.</p>	<p>Small doubles facts (up to $5+5=10$)</p> <p>$5+$ facts up to 10 (ex. $5+1=6$, $5+2=7$, etc.)</p> <p>When given a number within 10, the student is able to identify the smaller part to make a 10 (ex. If I have 7, how many to make 10? 3)</p>	<p>I am learning to add and subtract.</p> <p>I know I am successful when:</p> <ul style="list-style-type: none"> ● I can mentally solve small doubles within 10. ● I can mentally solve $5 +$ some more within 10. ● I can mentally solve small parts of ten within 10.

<p>End goal in Unit 2: At this point in the year, students solve fluency tasks (within 10) based on small doubles, five plus ____, and small parts of tens. 1+1, 2+2, 3+3, 4+4, 5+5 5+0, 5+1, 5+2, 5+3, 5+4 6+4, 7+3, 8+2, 9+1, 10+0 Students begin to connect counting forward and backward with a number line and adding and subtracting. Note: Reaching fluency is an ongoing process that will take much of the year.</p> <p style="text-align: center;">Coherence KY.K.OA.2→KY.1.OA.6→KY.2.OA.2</p>	<ul style="list-style-type: none"> ● Small doubles ● Number line ● Equivalent ● Sums ● Strategies ● Fluency ● Decompose ● Add ● Subtract ● Count on 	<ul style="list-style-type: none"> ● I can add within 20 using a variety of strategies with materials. ● I can subtract within 20 using a variety of strategies with materials. ● I can apply what I know about numbers within 10 to add/subtract within 20.
<p>KY.1.NBT.1 Count and represent numbers.</p> <p>a. Count forward to and backward from 420 50, starting at any number less than 420 50.</p> <p>b. In this range, read and write numerals and represent a number of objects with a written numeral.</p> <p>End goal in Unit 2: Students use strategies based on place value, properties of operations and the relationship between addition and subtraction; however, when solving any problem, students choose any strategy. A written representation shows a strategy using words, pictures and/or numbers.</p> <p style="text-align: center;">Coherence KY.K.CC.2→KY.1.NBT.1→KY.2.NBT.2</p>	<p>Count and represent numbers to 30 (forward and backward)</p> <ul style="list-style-type: none"> ● Forward ● Backward ● Numerals ● represent 	<p>I am learning to count forward and backward and represent numbers.</p> <p>I know I am successful when:</p> <ul style="list-style-type: none"> ● I can count forward to 50 starting from any number. ● I can count back from 50 starting from any number. ● I can tell the number before or after any number within 50. ● I can read numbers up to 50. ● I can write numbers to 50. ● I can write the number to show how many objects in a group to 50.
<p>KY.1.NBT.2 Understand the two-digits of a two-digit number represent amounts of tens and ones.</p>	<p>Compose and decompose quantities up to 19.</p>	<p>I am learning to create and count numbers 11 to 19.</p>

<p>Understand the following as special cases:</p> <p>a. 10 can be thought of as a bundle of ten ones — called a “ten.”</p> <p>b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight or nine ones.</p> <p>End goal in Unit 2: Students use concrete models and drawings, as well as strategies based on place value, properties of operations, and the relationship between addition and subtraction. When solving any problem, students choose to use a concrete model or a drawing. Their strategy is based on place value, properties of operations or the relationship between addition and subtraction. A written representation shows a strategy using words, pictures and/or numbers.</p> <p>Coherence KY.K.NBT.1→KY.1.NBT.2→KY.2.NBT.1</p>	<ul style="list-style-type: none"> • tens • ones • ten-frames 	<p>I know I am successful when:</p> <ul style="list-style-type: none"> • I can count bundles of ten both forward and backward for teen numbers. • I can compose teen numbers using bundles, ten-frames, or towers of ten to explain my thinking. • I can decompose two-digit numbers into tens and ones using materials to explain my thinking.
<p>KY.1.NBT.3 Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.</p> <p>End goal in Unit 2: Students should be able to compare numbers 1-60 using the symbols $>$, $<$, and $=$.</p> <p>Suggested Progression:</p> <ol style="list-style-type: none"> 1. Build numbers 0-10 not using symbols. 2. Use visuals of numbers 0-10 not using symbols. 3. Use bare numbers 0-10 not using symbols. 4. Build numbers 0-60 and use symbols to compare. 5. Use visuals of numbers 0-60 and use symbols to compare. 	<p>Compare two bare numbers between 1 and 10.</p> <ul style="list-style-type: none"> • digit • bigger, larger, more, greater than • smaller, fewer, less than • equal to 	<p>I am learning to compare two-digit numbers based on the meanings of the tens and ones digits.</p> <p>I know I am successful when:</p> <ul style="list-style-type: none"> • I can compare two numbers by their quantity. • I can compare two numbers 0-60 by building the numbers.

<p>6. Use bare numbers 0-60 and use symbols to compare. 7. Build numbers 0-100 and use symbols to compare. 8. Use visuals of numbers 0-100 and use symbols to compare. 9. Use bare numbers 0-100 and use symbols to compare. 10. Build numbers 0-120 and use symbols to compare. 11. Use visuals of numbers 0-120 and use symbols to compare. 12. Use bare numbers 0-120 and use symbols to compare.</p>		<ul style="list-style-type: none"> ● I can compare two numbers 0-60 by and use symbols to compare. ● I can compare two bare numbers 0-60 by and use symbols to compare.
<p>KY.1.MD.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.</p> <p>End goal in Unit 2: Students use nonstandard tools to estimate and measure objects. They compare lengths of three different objects. Coherence KY.K.MD.1→KY.1.MD.1→KY.2.MD.4</p>	<ul style="list-style-type: none"> ● tallest/shortest ● longer/shorter ● objects ● order ● first, second, third ● compare ● tool ● measure 	<p>I am learning to order and compare the lengths of more than two objects.</p> <p>I know I am successful when:</p> <ul style="list-style-type: none"> ● I can place three objects in the correct order by length. ● I can compare two objects by using a third object as a measuring tool.
<p>KY.1.MD.2 Express the length of an object as a whole number of same size length units, by laying multiple copies of a shorter object (the length unit) end to end with no gaps or overlaps.</p> <p>End goal in Unit 2: Students measure numerous items with different sizes of nonstandard units. The smaller the unit, the more units needed to measure the object. Coherence KY.1.MD.2→KY.2.MD.2</p>	<ul style="list-style-type: none"> ● multiple ● measure ● length ● more/fewer ● units ● gaps ● overlaps ● measuring strategies 	<p>I am learning to use multiple copies of one object to measure the length of larger objects.</p> <p>I know I'm successful when:</p> <ul style="list-style-type: none"> ● I can demonstrate correct measuring strategies when

		<p>measuring an object or distance in multiple units.</p> <ul style="list-style-type: none"> ● I can accurately start at the beginning, end at the end, and leave no gaps or overlaps. ● I can accurately measure in a straight line and keep track of the number of units measured. ● I can understand that the smaller the unit, the more units are needed. ● I can understand that the larger the unit, the fewer units are needed.
<p>KY.1.G.1 Distinguish between defining attributes versus non-defining attributes; build and draw shapes to possess defining attributes. Defining attributes include, but are not limited to, number of sides or open/closed shapes. Non-defining attributes include, but are not limited to, color, orientation or overall size. Coherence KY.K.G.4→KY.1.G.1→KY.2.G.1</p>	<p>Describe similarities, differences, and attributes of 2-D and 3-D shapes with different sizes and orientations.</p> <ul style="list-style-type: none"> ● Attributes (vertices, sides, straight edges, open/closed) ● non-defining attributes (colors, size, patterns, orientation) ● Shapes ● Distinguish (describe) ● Build ● Draw 	<p>I am learning to build and draw shapes.</p> <p>I know I'm successful when:</p> <ul style="list-style-type: none"> ● I can build and draw shapes with appropriate attributes. ● I can distinguish (describe) shapes with appropriate attributes.
<p>Supporting Standards:</p>		

<p>KY.1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of <u>adding to</u>, <u>taking from</u>, <u>putting together</u>, <u>taking apart</u>, and <u>comparing</u>, with (<u>total</u>) unknowns in all positions. Students flexibly model or represent addition and subtraction situations or context problems (involving sums and differences up to 20). See Table 1 in Appendix A. Note: Drawings need not show detail, but accurately represent the quantities involved in the task. 1.MD.4 Coherence K.OA.2→ 1.OA.1→ 2.OA.1</p>	<p>Story problems (add to, take from) within 10 using objects or drawings.</p> <ul style="list-style-type: none"> ● Add to ● Take from ● Put together ● Take apart ● Equal ● Addition ● Subtraction ● Compare ● More/fewer ● Addends ● Unknown ● Difference 	<p>I am learning to solve word problems.</p> <p>I know I am successful when:</p> <ul style="list-style-type: none"> ● I can tell when I need to add or subtract to solve a word problem. ● I can model the story and solve a problem situation up to 20 by drawing or writing an equation to represent the situation. ● I can model the story and solve a problem situation up to 20 verbally or with materials. ● I can find solutions to put together / take apart problems with both addend unknown. ● I can solve comparison problems with the difference unknown (how many more, how many fewer).
<p>KY.1.OA.3 Apply properties of operations as strategies to add and subtract.</p> <p>End of the Unit 2: Students are not responsible for knowing the formal language of the different properties, but have the conceptual understanding of each property (commutative and associative property). Coherence KY.K.OA.2→KY.1.OA.3→KY.2.NBT.9</p>	<p>Add and subtract within 10 using objects or drawings.</p> <ul style="list-style-type: none"> ● addend ● order ● addition 	<p>I am learning to use strategies to add and subtract.</p> <p>I know I am successful when:</p> <ul style="list-style-type: none"> ● I can solve problems with the same addends in different order correctly {e.g $2+3 = 5$, $3+2=5$}

		<ul style="list-style-type: none"> I can create similar problems based on the problems I already have.
<p>KY.1.NBT.6 Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences). a. Subtract using: • concrete models or drawings; • strategies based on place value; • properties of operations; • the relationship between addition and subtraction b. Relate the subtraction strategy to a written method and explain the reasoning used.</p> <p>Students use strategies to subtract groups of ten from more tens. 80 – 30 can be expressed at 8 tens with 3 tens taken away which leaves 5 tens. Students explore using hundreds chart, base ten blocks, number lines and other tools. Coherence KY.1.NBT.6→KY.2.NBT.8</p>	<ul style="list-style-type: none"> • multiples • groups • subtract • models • bundles • reasoning • strategy 	<p>I am learning to subtract multiple/groups of 10 from other multiples/groups of 10.</p> <p>I know I am successful when:</p> <ul style="list-style-type: none"> • I can use models to subtract multiples/groups of 10 (bundles or linking cubes). • I can share my reasoning (strategy) with others.
<p>KY.1.MD.3 Assign values to time and money.</p> <p>a. Tell and write time in hours (and half-hours) using analog and digital clocks.</p> <p>End goal unit 2: Only identify full hours at this point in the year.)</p> <p>Prerequisite Skill: Teach students to skip count by 10s on and off the decade to help support their future ability to tell time to the minute.</p> <p>b. Identify the coins by values (penny, nickel, dime, quarter). (Only identify coin names at this point in the year.)</p>	<p>Recognize and identify coins by name.</p> <ul style="list-style-type: none"> • Hour hand • Minute hand • Digital • Analog • “On the hour” • Penny • Nickel • Dime • Quarter 	<p>I am learning to write and tell time to the hour and identify coins.</p> <p>I know I’m successful when:</p> <ul style="list-style-type: none"> • I can tell and write time to the hour using an analog and digital clock. • I can identify and recognize the name of coins (penny, nickel, dime, quarter).

KY.1.G.2 Compose shapes.

a. Compose two-dimensional shapes to create rectangles, squares, trapezoids, triangles, half-circles, quarter-circles and composite shapes to compose new shapes from the composite shapes.

Students do not need to learn formal names such as “right rectangular prisms.”

Coherence KY.K.G.6→KY.1.G.2

First graders learn to perceive a combination of shapes as a single new shape (e.g., recognizing that two isosceles triangles can be combined to make a rhombus, and simultaneously seeing the rhombus and the two triangles). Thus, they develop competencies that include:

- Solving shape puzzles
- Constructing designs with shapes
- Creating and maintaining a shape as a unit

The ability to describe, use and visualize the effect of composing and decomposing shapes is an important mathematical skill. It is not only relevant to geometry, but is related to children’s ability to compose and decompose numbers, which then leads to their fraction understanding. Students may use pattern blocks, plastic shapes, tangrams, or computer environments to make new shapes. The teacher can provide students with cutouts of shapes and ask them to combine them to make a particular shape.

Using simple shapes to construct a larger shape.

- Compose/Create
- Use
- 2D Shapes (rectangles, squares, trapezoids, triangles, half-circles and quarter-circles composite shape)


I am learning to use shapes to compose other 2D shapes.

I know I’m successful when:


- compose 2D shapes to create rectangles, squares, trapezoids, triangles, half-circles and quarter-circles composite shapes and compose new shapes from the composite shapes.

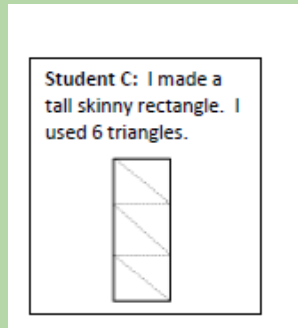
Example: What shapes can you create with triangles?

Student A: I made a square. I used 2 triangles.



Student B: I made a trapezoid. I used 4 triangles.





*Disclaimer: Success Criteria is the evidence students must produce to demonstrate learning. These examples are not comprehensive.

Anchor Materials/Resources

Investigations Unit 3 – How Many of Each? How Many of All?
Investigations Unit 4 – Fish Lengths and Fractions Rugs

[Illustrative Mathematics - Unit 3](#)
[Illustrative Mathematics - Unit 6](#)
[Illustrative Mathematics - Unit 7](#)

[Math Learning Center Math Apps](#)

Classroom Routines – [Daily Planner Unit 3](#)
Classroom Routines – [Daily Planner Unit 4](#)

MLC: [Numbers & Combinations to 10 ~ the Year](#)
 MLC: [The Kid Count Number Line](#)
 MLC: [Nov Calendar supplement](#)
 MLC: [Dec. Calendar Supplement](#)

TEDD - [Counting Collections](#)

[Choral Counting & Counting Collections](#) by Megan L. Franke, Elham Kazemi, and Angela Chan Turrou Stenhouse Publishers

[KCM Website for Primary Mathematics Support](#)

username: **bluegrass** password: **math** **great source for additional workshop tasks

[Math Tools](#)

[Number Talk Images](#)

Summative Assessment

While we do not have a Common Assessment for 1st grade, we recommend using the Investigations Open Response type questions that match the benchmarks/standards. There are rubrics with explanations and student work examples of:

- Exceeds expectations
- Meets expectations
- Partially expectations
- Does not meet expectations