

A Correlation of  
**INVESTIGATIONS**  
IN NUMBER, DATA, AND SPACE®



©2017



To the  
**Oklahoma Academic Standards for  
Mathematics  
Grades K-5**

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**Kindergarten Units**

**Unit 1** - Counting People, Sorting Buttons

**Unit 2** - Counting Quantities, Comparing Lengths

**Unit 3** - Make a Shape, Fill a Hexagon

**Unit 4** - Collect, Count and Measure

**Unit 5** - Build a Block, Build a Wall

**Unit 6** - How Many Now?

**Unit 7** - How Many Noses? How Many Eyes?

**Unit 8** - Ten Frames and Teen Numbers

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Oklahoma Academic Standards for Mathematics Kindergarten	Investigations 3 in Number, Data, and Space ©2017, Kindergarten
<b>Math Actions and Processes</b>	
<p><b>Develop a Deep and Flexible Conceptual</b> Understanding Demonstrate a deep and flexible conceptual understanding of mathematical concepts, operations, and relations while making mathematical and real-world connections. Students will develop an understanding of how and when to apply and use the mathematics they know to solve problems.</p>	<p><b>Unit 1:</b> 1.1, 1.3, 1.5, 2.2, 2.5, 3.3, 3.5  <b>Unit 3:</b> 1.1, 1.4, 1.5, 2.4, 2.5, 2.6  <b>Unit 7:</b> 1.4, 2.1, 2.2, 3.1, 3.3, 3.4, 3.6, 3.7, 3.8</p>
<p><b>Develop Accurate and Appropriate Procedural Fluency</b> Learn efficient procedures and algorithms for computations and repeated processes based on a strong sense of numbers. Develop fluency in addition, subtraction, multiplication, and division of numbers and expressions. Students will generate a sophisticated understanding of the development and application of algorithms and procedures.</p>	<p><b>Unit 6:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6  <b>Unit 8:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8</p>
<p><b>Develop Strategies for Problem Solving</b> Analyze the parts of complex mathematical tasks and identify entry points to begin the search for a solution. Students will select from a variety of problem solving strategies and use corresponding multiple representations (verbal, physical, symbolic, pictorial, graphical, tabular) when appropriate. They will pursue solutions to various tasks from real-world situations and applications that are often interdisciplinary in nature. They will find methods to verify their answers in context and will always question the reasonableness of solutions.</p>	<p><b>Unit 1:</b> 1.1, 1.2, 1.5, 2.1, 2.3, 3.1, 3.2, 3.4  <b>Unit 7:</b> 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.4, 3.8</p>
<p><b>Develop Mathematical Reasoning</b> Explore and communicate a variety of reasoning strategies to think through problems. Students will apply their logic to critique the thinking and strategies of others to develop and evaluate mathematical arguments, including making arguments and counterarguments and making connections to other contexts.</p>	<p><b>Unit 5:</b> 1.2, 1.3, 1.4, 1.6, 1.7, 1.9, 1.10  <b>Unit 6:</b> 1.1, 1.4, 1.5, 1.6, 2.2, 2.6, 3.2, 3.5, 3.6</p>

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<b>Oklahoma Academic Standards for Mathematics Kindergarten</b>	<b>Investigations 3 in Number, Data, and Space ©2017, Kindergarten</b>
<p><b>Develop a Productive Mathematical Disposition</b> Hold the belief that mathematics is sensible, useful and worthwhile. Students will develop the habit of looking for and making use of patterns and mathematical structures. They will persevere and become resilient, effective problem solvers.</p>	<p><b>Unit 2:</b> 1.1, 1.5, 1.6, 1.10, 2.10, 2.11 <b>Unit 6:</b> 1.1, 1.2, 1.5, 2.4, 2.5, 2.7, 3.2, 3.5 <b>Unit 8:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10</p>
<p><b>Develop the Ability to Make Conjectures, Model, and Generalize</b> Make predictions and conjectures and draw conclusions throughout the problem solving process based on patterns and the repeated structures in mathematics. Students will create, identify, and extend patterns as a strategy for solving and making sense of problems.</p>	<p><b>Unit 2:</b> 1.1, 1.3, 1.4, 1.9, 2.1, 2.6, 2.11, 2.12 <b>Unit 5:</b> 1.1, 1.2, 1.7, 1.9, 1.10</p>
<p><b>Develop the Ability to Communicate Mathematically</b> Students will discuss, write, read, interpret and translate ideas and concepts mathematically. As they progress, students' ability to communicate mathematically will include their increased use of mathematical language and terms and analysis of mathematical definitions.</p>	<p><b>Unit 4:</b> 1.1, 1.2, 1.4, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5 <b>Unit 5:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.10 <b>Unit 7:</b> 1.1, 1.2, 1.4, 2.1, 2.2, 3.1, 3.2, 3.3</p>
<b>Number &amp; Operations (N)</b>	
<b>K.N.1 Understand the relationship between quantities and whole numbers.</b>	
<p>K.N.1.1 Count aloud forward in sequence to 100 by 1's and 10's.</p>	<p><b>Unit 1:</b> 1.1, 1.4, 1.5, 2.1, 2.3, 2.5, 3.2, 3.6 <b>Unit 2:</b> 1.1, 1.6, 1.9, 2.2, 2.5, 2.8, 2.11 <b>Unit 3:</b> 1.2, 1.3, 1.5, 2.1, 2.3, 2.5, 2.7 <b>Unit 4:</b> 1.3, 1.5, 1.9, 2.3, 2.6, 2.7, 3.2, 3.4 <b>Unit 5:</b> 1.3, 1.5, 1.7, 1.8, 1.9, 1.10 <b>Unit 6:</b> 1.1, 1.3, 1.6, 2.1, 2.3, 2.5, 3.2, 3.4 <b>Unit 7:</b> 2.1, 2.2, 2.3, 3.1, 3.3, 3.5, 3.7, 3.8 <b>Unit 8:</b> 1.5, 1.6, 1.7, 2.2, 2.4, 2.8, 3.2, 3.5</p>
<p>K.N.1.2 Recognize that a number can be used to represent how many objects are in a set up to 10.</p>	<p><b>Unit 1:</b> 1.2, 1.4, 1.5, 2.1, 2.3, 3.1, 3.3, 3.5 <b>Unit 2:</b> 1.1, 1.2, 1.5, 1.9, 2.1, 2.3, 2.6, 2.10 <b>Unit 3:</b> 1.1, 1.3, 1.5, 2.1, 2.2, 2.4, 2.5, 2.6 <b>Unit 4:</b> 1.1, 1.3, 1.6, 2.3, 2.6, 3.3, 3.5, 3.6 <b>Unit 5:</b> 1.1, 1.3, 1.7, 1.9 <b>Unit 6:</b> 1.1, 1.5, 2.1, 2.2, 2.8, 3.4, 3.5, 3.6 <b>Unit 7:</b> 1.2, 1.3, 1.4, 2.1, 2.2, 3.1, 3.2, 3.8 <b>Unit 8:</b> 1.3, 1.5, 1.6, 2.3, 2.4, 2.6, 3.3, 3.5</p>

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<b>Oklahoma Academic Standards for Mathematics Kindergarten</b>	<b>Investigations 3 in Number, Data, and Space ©2017, Kindergarten</b>
K.N.1.3 Use ordinal numbers to represent the position of an object in a sequence up to 10.	This standard is covered in Investigations 3 in Number, Data, and Space Grade 4. Please see: <b>Unit 3:</b> 3.1
K.N.1.4 Recognize without counting (subitize) the quantity of a small group of objects in organized and random arrangements up to 10. (Clarification statement: Subitizing is defined as instantly recognizing the quantity of a set without having to count. "Subitizing" is not a vocabulary word and is not meant for student discussion at this age.)	<b>Unit 2:</b> 1.4, 1.6 <b>Unit 4:</b> 1.7, 1.9, 1.10, 2.1, 2.6 <b>Unit 6:</b> 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 3.2, 3.5
K.N.1.5 Count forward, with and without objects, from any given number up to 10.	<b>Unit 3:</b> 2.2, 2.5, 2.7 <b>Unit 4:</b> 1.2, 1.3, 1.6, 1.8, 2.1, 2.3, 2.5, 2.6, 2.7, 3.2, 3.3, 3.4, 3.5 <b>Unit 5:</b> 1.5, 1.6, 1.10 <b>Unit 6:</b> 1.2, 1.3, 1.4, 1.5, 1.6, 2.3, 2.4, 2.5, 2.7, 3.2, 3.3, 3.4, 3.5, 3.6 <b>Unit 7:</b> 1.1, 1.3, 2.3, 3.1, 3.4, 3.7 <b>Unit 8:</b> 1.2, 1.4, 1.5, 2.5, 2.6, 2.7, 2.8, 2.10, 3.1, 3.2, 3.3, 3.4, 3.5
K.N.1.6 Read, write, discuss, and represent whole numbers from 0 to at least 10. Representations may include numerals, pictures, real objects and picture graphs, spoken words, and manipulatives.	<b>Unit 1:</b> 3.2, 3.3, 3.4, 3.5, 3.6 <b>Unit 2:</b> 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 2.1, 2.2, 2.3, 2.4, 2.6, 2.8, 2.9, 2.10 <b>Unit 3:</b> 1.2, 1.4, 1.5, 2.2, 2.4, 2.5, 2.6, 2.7 <b>Unit 4:</b> 1.2, 1.3, 1.4, 1.5, 1.9, 1.10, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 <b>Unit 5:</b> 1.2, 1.3, 1.4, 1.5, 1.7, 1.8, 1.9, 1.10 <b>Unit 6:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.5, 2.6, 2.7, 2.8, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 <b>Unit 7:</b> 1.2, 1.3, 2.2, 2.3, 3.1, 3.2, 3.4, 3.5, 3.6, 3.8 <b>Unit 8:</b> 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 2.1, 2.2, 2.4, 2.6, 2.7, 2.10, 3.1, 3.2, 3.3, 3.4, 3.5
K.N.1.7 Find a number that is 1 more or 1 less than a given number up to 10.	<b>Unit 4:</b> 2.3, 2.4, 2.5

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<b>Oklahoma Academic Standards for Mathematics Kindergarten</b>	<b>Investigations 3 in Number, Data, and Space ©2017, Kindergarten</b>
K.N.1.8 Using the words more than, less than or equal to compare and order whole numbers, with and without objects, from 0 to 10.	<b>Unit 1:</b> 2.1, 2.2, 2.3, 2.4, 2.5 <b>Unit 2:</b> 1.2, 1.3, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10 <b>Unit 3:</b> 1.1, 1.2, 1.4, 1.5, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7 <b>Unit 4:</b> 1.1, 1.3, 1.5, 1.6, 1.9, 1.10, 2.1, 2.4, 2.5, 2.6, 2.7, 3.2, 3.3, 3.6 <b>Unit 5:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.7, 1.8, 1.9, 1.10 <b>Unit 6:</b> 1.1, 1.3, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 2.6, 2.8, 3.2, 3.4, 3.5 <b>Unit 7:</b> 1.3, 1.4, 2.1, 2.2, 2.3, 3.1, 3.2, 3.4, 3.5, 3.6, 3.8 <b>Unit 8:</b> 1.4, 1.5, 1.6, 1.7, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.10, 3.1, 3.2, 3.3, 3.4, 3.5
<b>K.N.2 Develop conceptual fluency with addition and subtraction (up to 10) using objects and pictures.</b>	
K.N.2.1 Compose and decompose numbers up to 10 with objects and pictures.	<b>Unit 6:</b> 2.3, 2.4, 2.6, 3.1, 3.2, 3.3, 3.4 <b>Unit 8:</b> 1.1, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4
<b>K.N.3 Understand the relationship between whole numbers and fractions through fair share.</b>	
K.N.3.1 Distribute equally a set of objects into at least two smaller equal sets.	<b>Unit 6:</b> 1.4, 1.5, 2.4, 2.5, 3.2, 3.3, 3.4, 3.5, 3.6
<b>K.N.4 Identify coins by name.</b>	
K.N.4.1 Identify pennies, nickels, dimes, and quarters by name.	For related content, please see: <b>Unit 2:</b> 1.7, 1.8 <b>Unit 4:</b> 1.6, 1.7, 1.8, 2.1, 2.4, 2.6, 3.2 <b>Unit 6:</b> 1.3, 1.4, 1.6, 3.2 <b>Unit 8:</b> 1.7, 2.5, 2.8
<b>Algebraic Reasoning &amp; Algebra (A)</b>	
<b>K.A.1 Duplicate patterns in a variety of contexts.</b>	
K.A.1.1 Sort and group up to 10 objects into a set based upon characteristics such as color, size, and shape. Explain verbally what the objects have in common.	<b>Unit 1:</b> 3.1, 3.3, 3.4, 3.5, 3.6 <b>Unit 2:</b> 1.3, 1.6, 1.9, 2.1, 2.2, 2.3, 2.4, 2.5, 2.8, 2.12 <b>Unit 3:</b> 1.2, 1.3, 2.3, 2.6 <b>Unit 4:</b> 1.1, 1.4, 1.7, 1.10, 2.3, 2.6, 3.2, 3.6 <b>Unit 5:</b> 1.1, 1.2, 1.3 <b>Unit 6:</b> 1.1, 1.6, 2.1, 2.6, 3.2 <b>Unit 7:</b> 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 3.2, 3.4, 3.5, 3.6, 3.8 <b>Unit 8:</b> 1.6, 1.7, 2.6, 3.2
K.A.1.2 Recognize, duplicate, complete, and extend repeating, shrinking and growing patterns involving shape, color, size, objects, sounds, movement, and other contexts.	For related content, please see: <b>Unit 3:</b> 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7 <b>Unit 7:</b> 1.2, 3.3, 3.7
<b>Geometry &amp; Measurement (GM)</b>	

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<b>K.GM.1 Recognize and sort basic two- dimensional shapes and use them to represent real-world objects.</b>	
K.GM.1.1 Recognize squares, circles, triangles, and rectangles.	<b>Unit 3:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7 <b>Unit 4:</b> 1.3 <b>Unit 5:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10 <b>Unit 7:</b> 1.1, 1.2, 1.3, 2.2, 2.3, 3.2
K.GM.1.2 Sort two-dimensional objects using characteristics such as shape, size, color, and thickness.	<b>Unit 1:</b> 2.2, 3.4 <b>Unit 3:</b> 1.1, 1.2, 1.3, 1.4, 1.5
K.GM.1.3 Identify attributes of two-dimensional shapes using informal and formal geometric language interchangeably.	<b>Unit 3:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4 <b>Unit 5:</b> 1.5, 1.9
K.GM.1.4 Use smaller shapes to form a larger shape when there is an outline to follow.	<b>Unit 1:</b> 1.1, 1.3, 1.4, 2.2, 2.3, 2.4, 2.5, 3.2, 3.3, 3.4, 3.5, 3.6 <b>Unit 3:</b> 1.2, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7 <b>Unit 4:</b> 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 <b>Unit 5:</b> 1.6, 1.7, 1.8, 1.9, 1.10
K.GM.1.5 Compose free-form shapes with blocks.	<b>Unit 3:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.4, 2.5, 2.6, 2.7 <b>Unit 5:</b> 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10
K.GM.1.6 Use basic shapes and spatial reasoning to represent objects in the real world.	<b>Unit 1:</b> 1.1, 1.2, 1.4, 1.5, 2.1, 2.4, 2.5, 3.2, 3.4, 3.5, 3.6 <b>Unit 2:</b> 2.4, 2.10 <b>Unit 3:</b> 1.1, 1.2, 1.4, 1.5, 2.1, 2.2, 2.4, 2.5, 2.6, 2.7 <b>Unit 4:</b> 1.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 <b>Unit 5:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10
<b>K.GM.2 Compare and order objects according to location and measurable attributes.</b>	
K.GM.2.1 Use words to compare objects according to length, size, weight, position, and location.	<b>Unit 1:</b> 1.1, 1.2, 1.3, 1.5, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 3.4, 3.5 <b>Unit 3:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7 <b>Unit 5:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10 <b>Unit 7:</b> 1.1, 1.2, 1.3, 1.4, 2.2, 2.3, 3.2
K.GM.2.2 Order up to 6 objects using measurable attributes, such as length and weight.	<b>Unit 2:</b> 2.9, 2.10, 2.12 <b>Unit 4:</b> 1.4 <b>Unit 8:</b> 3.1, 3.2, 3.3, 3.4, 3.5



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K.GM.2.3 Sort objects into sets by more than one attribute.	<b>Unit 1:</b> 3.3, 3.4 <b>Unit 7:</b> 1.1, 1.2, 1.3
K.GM.2.4 Compare the number of objects needed to fill two different containers.	<b>Unit 2:</b> 2.1, 2.4, 2.5, 2.8, 2.11 <b>Unit 3:</b> 1.4, 2.4
<b>K.GM.3 Tell time as it relates to daily life.</b>	
K.GM.3.1 Develop an awareness of simple time concepts using words such as yesterday, today, tomorrow, morning, afternoon, and night within his/her daily life	<b>Unit 1:</b> 1.3, 1.4, 1.5, 2.1, 2.2, 2.5, 3.2, 3.4, 3.6 <b>Unit 2:</b> 1.4, 2.3, 2.11 <b>Unit 3:</b> 1.3, 2.1, 2.5 <b>Unit 4:</b> 1.3, 1.8, 2.5, 3.4 <b>Unit 5:</b> 1.7, 1.10 <b>Unit 6:</b> 2.5, 3.3 <b>Unit 8:</b> 2.1, 2.7, 3.4
<b>Data &amp; Probability (D)</b>	
<b>K.D.1 Collect, organize, and interpret categorical data.</b>	
K.D.1.1 Collect and sort information about objects and events in the environment.	<b>Unit 1:</b> 3.5, 3.6 <b>Unit 7:</b> 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8
K.D.1.2 Use categorical data to create real-object and picture graphs.	For related content, please see: <b>Unit 1:</b> 1.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 <b>Unit 4:</b> 1.4, 1.7, 1.9, 2.1, 2.3, 3.2 <b>Unit 7:</b> 1.2, 1.4, 2.2, 2.3
K.D.1.3 Draw conclusions from real-object and picture graphs.	For related content, please see: <b>Unit 1:</b> 1.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 <b>Unit 4:</b> 1.4, 1.7, 1.9, 2.1, 2.3, 3.2 <b>Unit 7:</b> 1.2, 1.4, 2.2, 2.3

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**Grade 1 Units**

**Unit 1** - Building Numbers and Solving Story Problems

**Unit 2** - Comparing and Combining Shapes

**Unit 3** - How Many of Each? How Many in All

**Unit 4** - Fish Lengths and Fraction Rugs

**Unit 5** - Number Games and Crayon Problems

**Unit 6** - Would You Rather Be an Eagle or a Whale?

**Unit 7** - How Many Tens? How Many Ones?

**Unit 8** - Blocks and Buildings

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Oklahoma Academic Standards for Mathematics Grade 1	Investigations 3 in Number, Data, and Space ©2017, Grade 1
<b>Math Actions and Processes</b>	
<p><b>Develop a Deep and Flexible Conceptual Understanding</b> Demonstrate a deep and flexible conceptual understanding of mathematical concepts, operations, and relations while making mathematical and real-world connections. Students will develop an understanding of how and when to apply and use the mathematics they know to solve problems.</p>	<p><b>Unit 1:</b> 1.1, 1.3, 1.4, 2.4, 2.6, 2.7, 3.2, 3.3, 3.5, 3.7  <b>Unit 2:</b> 1.1, 1.3, 1.5, 1.6, 2.2, 2.3, 2.5  <b>Unit 3:</b> 2.1, 2.2, 2.6, 2.7, 2.8, 3.1, 4.1, 4.2, 4.8  <b>Unit 4:</b> 1.1, 1.2, 1.4, 1.5, 1.6, 1.8, 2.1, 2.4, 2.5, 2.6  <b>Unit 5:</b> 1.3, 2.6, 2.7, 3.1, 3.2, 3.5, 3.6, 3.7  <b>Unit 6:</b> 1.1, 1.2, 1.3, 1.4, 1.6, 1.7, 1.8, 1.9, 2.1, 2.2, 2.3  <b>Unit 7:</b> 1.2, 1.3, 1.5, 2.3, 2.4, 2.7  <b>Unit 8:</b> 1.1, 1.2, 1.3, 1.4, 1.7, 1.8, 1.9</p>
<p><b>Develop Accurate and Appropriate Procedural Fluency</b> Learn efficient procedures and algorithms for computations and repeated processes based on a strong sense of numbers. Develop fluency in addition, subtraction, multiplication, and division of numbers and expressions. Students will generate a sophisticated understanding of the development and application of algorithms and procedures.</p>	<p><b>Unit 1:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7  <b>Unit 5:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8</p>
<p><b>Develop Strategies for Problem Solving</b> Analyze the parts of complex mathematical tasks and identify entry points to begin the search for a solution. Students will select from a variety of problem solving strategies and use corresponding multiple representations (verbal, physical, symbolic, pictorial, graphical, tabular) when appropriate. They will pursue solutions to various tasks from real-world situations and applications that are often interdisciplinary in nature. They will find methods to verify their answers in context and will always question the reasonableness of solutions.</p>	<p><b>Unit 1:</b> 1.1, 1.2, 2.3, 2.8, 3.1, 3.2  <b>Unit 3:</b> 1.1, 1.2, 2.1, 2.2, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.5  <b>Unit 6:</b> 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.2</p>
<p><b>Develop Mathematical Reasoning</b> Explore and communicate a variety of reasoning strategies to think through problems. Students will apply their logic to critique the thinking and strategies of others to develop and evaluate mathematical arguments, including making arguments and counterarguments and making connections to other contexts.</p>	<p><b>Unit 3:</b> 1.1, 1.2, 2.1, 2.2, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.5  <b>Unit 7:</b> 1.1, 1.3, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.4, 2.5, 2.7, 2.8, 3.1, 3.2, 3.6</p>

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Oklahoma Academic Standards for Mathematics Grade 1	Investigations 3 in Number, Data, and Space ©2017, Grade 1
<p><b>Develop a Productive Mathematical Disposition</b> Hold the belief that mathematics is sensible, useful and worthwhile. Students will develop the habit of looking for and making use of patterns and mathematical structures. They will persevere and become resilient, effective problem solvers.</p>	<p><b>Unit 1:</b> 1.1, 1.2, 2.3, 2.4, 2.7, 2.8, 3.1, 3.2, 3.4, 3.6, 3.7 <b>Unit 6:</b> 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.2</p>
<p><b>Develop the Ability to Make Conjectures, Model, and Generalize</b> Make predictions and conjectures and draw conclusions throughout the problem solving process based on patterns and the repeated structures in mathematics. Students will create, identify, and extend patterns as a strategy for solving and making sense of problems.</p>	<p><b>Unit 1:</b> 1.2, 1.4, 2.2, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5 <b>Unit 4:</b> 1.1, 1.2, 1.3, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4 <b>Unit 6:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2 <b>Unit 7:</b> 1.2, 1.4, 2.2, 2.3, 2.5, 2.6, 2.7, 3.1, 3.3, 3.4, 3.5, 3.6, 3.7</p>
<p><b>Develop the Ability to Communicate Mathematically</b> Students will discuss, write, read, interpret and translate ideas and concepts mathematically. As they progress, students' ability to communicate mathematically will include their increased use of mathematical language and terms and analysis of mathematical definitions.</p>	<p><b>Unit 2:</b> 1.4, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4 <b>Unit 5:</b> 1.1, 1.4, 2.1, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.1, 3.5</p>
<b>Number &amp; Operations (N)</b>	
<b>1.N.1 Count, compare, and represent whole numbers up to 100, with an emphasis on groups of tens and ones.</b>	
<p>1.N.1.1 Recognize numbers to 20 without counting (subitize) the quantity of structured arrangements. (Clarification statement: Subitizing is defined as instantly recognizing the quantity of a set without having to count. "Subitizing" is not a vocabulary word and is not meant for student discussion at this age.)</p>	<p><b>Unit 3:</b> 1.1, 1.2, 1.3, 2.5 <b>Unit 5:</b> 2.5</p>
<p>1.N.1.2 Use concrete representations to describe whole numbers between 10 and 100 in terms of tens and ones.</p>	<p><b>Unit 1:</b> 1.1, 1.2, 1.3, 1.5 <b>Unit 3:</b> 1.1, 1.4, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8 <b>Unit 7:</b> 1.3, 1.4, 1.5, 1.6, 1.7, 1.8</p>

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1.N.1.3 Read, write, discuss, and represent whole numbers up to 100. Representations may include numerals, addition and subtraction, pictures, tally marks, number lines and manipulatives, such as bundles of sticks and base 10 blocks.	<b>Unit 1:</b> 1.1, 1.2, 1.3, 1.5 <b>Unit 3:</b> 1.1, 1.4, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8 <b>Unit 7:</b> 1.3, 1.4, 1.5, 1.6, 1.7, 1.8
1.N.1.4 Count forward, with and without objects, from any given number up to 100 by 1s, 2s, 5s and 10s.	<b>Unit 1:</b> 1.1, 1.2, 1.3, 1.5 <b>Unit 3:</b> 1.1, 1.4, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8 <b>Unit 6:</b> 1.1, 1.2, 1.3, 1.4, 1.6, 1.7, 1.9 <b>Unit 7:</b> 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8
1.N.1.5 Find a number that is 10 more or 10 less than a given number up to 100.	<b>Unit 7:</b> 1.3, 1.4, 1.5, 1.6, 1.8, 2.5, 2.6, 2.7, 2.8, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8
1.N.1.6 Compare and order whole numbers from 0 to 100.	<b>Unit 1:</b> 2.5, 3.6 <b>Unit 3:</b> 3.3, 3.4 <b>Unit 7:</b> 1.6, 2.2, 2.4, 2.5, 2.6, 2.7, 2.8
1.N.1.7 Use knowledge of number relationships to locate the position of a given whole number on an open number line up to 20.	<b>Unit 3:</b> 1.1, 1.2, 1.4, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8 <b>Unit 5:</b> 2.7 <b>Unit 7:</b> 2.2, 2.4
1.N.1.8 Use objects to represent and use words to describe the relative size of numbers, such as more than, less than, and equal to.	<b>Unit 1:</b> 2.5, 3.6, 3.7 <b>Unit 2:</b> 1.1, 1.2, 1.5, 1.7, 2.2 <b>Unit 3:</b> 1.2, 1.3, 2.1, 2.2, 2.4, 2.6, 3.4, 3.5, 4.1, 4.4, 4.5, 4.7, 4.8 <b>Unit 4:</b> 1.2, 1.4, 1.6 <b>Unit 7:</b> 1.6, 2.2, 2.4, 2.5, 2.6, 2.7, 2.8
<b>1.N.2 Solve addition and subtraction problems up to 10 in real-world and mathematical contexts.</b>	
1.N.2.1 Represent and solve real-world and mathematical problems using addition and subtraction up to ten.	<b>Unit 1:</b> 2.2, 2.4, 2.5, 2.8, 3.1, 3.4, 3.5, 3.7 <b>Unit 2:</b> 1.1, 1.4 <b>Unit 3:</b> 2.1, 2.4, 2.5, 2.8, 3.1, 3.2, 3.6, 4.8 <b>Unit 4:</b> 1.5, 1.6, 1.7, 1.8, 2.3, 2.4, 2.6, 3.2, 3.4, 3.5, 3.7 <b>Unit 5:</b> 1.1, 1.5, 1.7, 2.3, 2.4, 2.6, 3.2, 3.7 <b>Unit 6:</b> 1.1, 1.4, 1.6, 1.9, 2.2, 2.3 <b>Unit 7:</b> 1.1, 1.2, 1.3, 3.2, 3.4, 3.6
1.N.2.2 Determine if equations involving addition and subtraction are true.	<b>Unit 1:</b> 2.2, 2.4, 2.5, 2.6, 3.2, 3.4 <b>Unit 3:</b> 1.2, 2.5, 2.6, 2.7, 2.8, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 4.8 <b>Unit 5:</b> 2.1, 2.3, 2.5, 2.7, 2.8, 3.1, 3.6

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1.N.2.3 Demonstrate fluency with basic addition facts and related subtraction facts up to 10.	<b>Unit 1:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7 <b>Unit 5:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8
1.N.3 Develop foundational ideas for fractions.	<b>Unit 1:</b> 1.1, 1.2, 1.4, 1.5 <b>Unit 2:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7 <b>Unit 4:</b> 1.8, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 <b>Unit 5:</b> 2.3 <b>Unit 8:</b> 1.3, 1.5, 1.6, 1.7, 1.8, 1.9
1.N.3.1 Partition a regular polygon using physical models and recognize when those parts are equal.	<b>Unit 4:</b> 1.8, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 <b>Unit 5:</b> 2.3 <b>Unit 8:</b> 1.8
1.N.3.2 Partition (fair share) sets of objects into equal groupings.	<b>Unit 4:</b> 1.8, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 <b>Unit 5:</b> 2.3 <b>Unit 8:</b> 1.8
1.N.4 Identify coins and their values.	<b>Unit 1:</b> 1.2, 1.3, 1.5, 2.1, 2.6, 3.5, 3.6 <b>Unit 5:</b> 3.2, 3.3, 3.4, 3.5, 3.6, 3.7 <b>Unit 6:</b> 1.3, 1.5, 2.2, 2.3 <b>Unit 7:</b> 1.1, 1.2, 1.3, 3.4
1.N.4.1 Identifying pennies, nickels, dimes, and quarters by name and value.	<b>Unit 1:</b> 1.2, 1.3, 1.5, 2.1, 2.6, 3.5, 3.6 <b>Unit 5:</b> 3.2, 3.3, 3.4, 3.5, 3.6, 3.7 <b>Unit 6:</b> 1.3, 1.5, 2.2, 2.3 <b>Unit 7:</b> 1.1, 1.2, 1.3, 3.4
1.N.4.2 Write a number with the cent symbol to describe the value of a coin.	<b>Unit 1:</b> 1.2, 1.3, 1.5, 2.1, 2.6, 3.5, 3.6 <b>Unit 5:</b> 3.2, 3.3, 3.4, 3.5, 3.6, 3.7 <b>Unit 6:</b> 1.3, 1.5, 2.2, 2.3 <b>Unit 7:</b> 1.1, 1.2, 1.3, 3.4
1.N.4.3 Determine the value of a collection of pennies, nickels, or dimes up to one dollar counting by ones, fives, or tens.	<b>Unit 1:</b> 1.2, 1.3, 1.5, 2.1, 2.6, 3.5, 3.6 <b>Unit 5:</b> 3.2, 3.3, 3.4, 3.5, 3.6, 3.7 <b>Unit 6:</b> 1.3, 1.5, 2.2, 2.3 <b>Unit 7:</b> 1.1, 1.2, 1.3, 3.4

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<b>Algebraic Reasoning &amp; Algebra (A)</b>	
<b>1.A.1 Identify patterns found in real- world and mathematical situations.</b>	
1.A.1.1 Identify, create, complete, and extend repeating, growing, and shrinking patterns with quantity, numbers, or shapes in a variety of real-world and mathematical contexts.	<b>Unit 1:</b> 1.4, 1.5, 2.1, 2.4, 2.7, 2.8, 3.1 ,3.2, 3.6, 3.7 <b>Unit 2:</b> 1.3, 1.6, 2.5 <b>Unit 3:</b> 1.1, 1.3, 1.4, 2.5, 3.1, 3.2 <b>Unit 5:</b> 2.4, 2.6 <b>Unit 7:</b> 1.1, 1.2, 1.3
<b>Geometry &amp; Measurement (GM)</b>	
<b>1.GM.1 Recognize, compose, and decompose two- and three-dimensional shapes.</b>	
1.GM.1.1 Identify trapezoids and hexagons by pointing to the shape when given the name.	<b>Unit 2:</b> 1.1, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5
1.GM.1.2 Compose and decompose larger shapes using smaller two-dimensional shapes.	<b>Unit 2:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7 <b>Unit 4:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 2.6
1.GM.1.3 Compose structures with three-dimensional shapes.	<b>Unit 8:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9
1.GM.1.4 Recognize three-dimensional shapes such as cubes, cones, cylinders, and spheres.	<b>Unit 8:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9
<b>1.GM.2 Select and use nonstandard and standard units to describe length and volume/capacity.</b>	
1.GM.2.1 Use nonstandard and standard measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement.	<b>Unit 4:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7
1.GM.2.2 Illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other.	<b>Unit 4:</b> 1.3, 1.4, 1.5, 1.6, 1.7
1.GM.2.3 Measure the same object/distance with units of two different lengths and describe how and why the measurements differ.	<b>Unit 4:</b> 1.3, 1.4, 1.5, 1.6, 1.7
1.GM.2.4 Describe a length to the nearest whole unit using a number and a unit.	<b>Unit 4:</b> 1.3, 1.4, 1.5, 1.6, 1.7
1.GM.2.5 Use standard and nonstandard tools to identify volume/capacity. Compare and sort containers that hold more, less, or the same amount.	This standard is covered in Investigations 3 in Number, Data, and Space Grade 3. Please see: <b>Unit 3:</b> 1.1

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<b>1.GM.3 Tell time to the half and full hour.</b>	
1.GM.3.1 Tell time to the hour and half-hour (analog and digital).	<b>Unit 1:</b> 1.4, 2.3 <b>Unit 2:</b> 1.4 <b>Unit 3:</b> 1.4, 2.7, 4.3 <b>Unit 4:</b> 1.1, 1.2, 1.3, 1.5, 1.7, 2.1, 2.5, 2.6 <b>Unit 5:</b> 1.1, 1.2, 1.7, 2.4, 2.5, 2.8, 3.2 <b>Unit 6:</b> 1.6, 1.8, 2.1 <b>Unit 7:</b> 2.1, 2.3, 3.3, 3.7 <b>Unit 8:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6
<b>Data &amp; Probability (D)</b>	
<b>1.D.1 Collect, organize, and interpret categorical and numerical data.</b>	
1.D.1.1 Collect, sort, and organize data in up to three categories using representations (e.g., tally marks, tables, Venn diagrams).	<b>Unit 1:</b> 1.5 <b>Unit 2:</b> 2.1, 2.2, 2.3, 2.4 <b>Unit 3:</b> 4.1 <b>Unit 6:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.1, 2.2, 2.3
1.D.1.2 Use data to create picture and bar-type graphs to demonstrate one-to-one correspondence.	<b>Unit 2:</b> 2.1, 2.2, 2.3, 2.4 <b>Unit 6:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.1, 2.2, 2.3
1.D.1.3 Draw conclusions from picture and bar-type graphs.	<b>Unit 2:</b> 2.1, 2.2, 2.3, 2.4 <b>Unit 6:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.1, 2.2, 2.3



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**Grade 2 Units**

**Unit 1** - Coins, Numbers Strings, and Story Problem

**Unit 2** - Attributes of Shapes and Parts of a Whole

**Unit 3** - How Many Stickers? How Many Cents?

**Unit 4** - Pockets, Teeth, and Guess My Rule

**Unit 5** - How Many Tens? How Many Hundreds?

**Unit 6** - How Far Can You Jump?

**Unit 7** - Partners, Teams, and Other Groups

**Unit 8** - Enough for the Class? Enough for the Grade?

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<p><b>Math Actions and Processes</b></p>	
<p>Develop a Deep and Flexible Conceptual Understanding Demonstrate a deep and flexible conceptual understanding of mathematical concepts, operations, and relations while making mathematical and real-world connections. Students will develop an understanding of how and when to apply and use the mathematics they know to solve problems.</p>	<p><b>Unit 1:</b> 1.5, 1.6, 2.3, 3.1, 3.3, 3.5, 3.7, 4.1, 4.5  <b>Unit 2:</b> 1.1, 1.4, 2.5, 2.6, 3.2, 3.4, 3.6, 3.7, 3.8  <b>Unit 3:</b> 1.3, 1.5, 1.7, 1.8, 2.3, 2.4, 2.7, 2.9, 3.1, 3.6, 3.7  <b>Unit 4:</b> 1.1, 1.2, 1.3, 1.5, 1.6, 2.2, 2.3, 2.4, 2.5, 2.6  <b>Unit 6:</b> 1.1, 1.2, 1.3, 1.5, 1.6, 2.3, 2.4, 2.5, 2.6  <b>Unit 7:</b> 1.1, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 2.6  <b>Unit 8:</b> 1.1, 1.4, 2.5, 2.6, 2.7, 2.8, 2.9</p>
<p>Develop Accurate and Appropriate Procedural Fluency Learn efficient procedures and algorithms for computations and repeated processes based on a strong sense of numbers. Develop fluency in addition, subtraction, multiplication, and division of numbers and expressions. Students will generate a sophisticated understanding of the development and application of algorithms and procedures.</p>	<p><b>Unit 1:</b> 2.4, 2.7, 3.6  <b>Unit 3:</b> 1.4, 1.5, 1.7, 2.3, 2.5, 2.7, 2.8, 3.1, 3.2, 3.4, 3.6, 3.7  <b>Unit 5:</b> 1.1, 1.2, 1.5, 2.1, 2.4, 2.5, 3.1, 3.4, 3.5, 3.6, 3.7, 3.8  <b>Unit 6:</b> 1.1, 1.2, 1.4, 1.5, 1.6, 2.1, 2.5, 2.6  <b>Unit 7:</b> 1.1, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6  <b>Unit 8:</b> 1.1, 1.2, 1.4, 1.6, 1.7, 1.9, 1.11, 2.6</p>
<p>Develop Strategies for Problem Solving Analyze the parts of complex mathematical tasks and identify entry points to begin the search for a solution. Students will select from a variety of problem solving strategies and use corresponding multiple representations (verbal, physical, symbolic, pictorial, graphical, tabular) when appropriate. They will pursue solutions to various tasks from real-world situations and applications that are often interdisciplinary in nature. They will find methods to verify their answers in context and will always question the reasonableness of solutions.</p>	<p><b>Unit 1:</b> 1.1, 1.2, 1.4, 2.1, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 4.1, 4.2  <b>Unit 8:</b> 1.1, 1.3, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8</p>
<p>Develop Mathematical Reasoning Explore and communicate a variety of reasoning strategies to think through problems. Students will apply their logic to critique the thinking and strategies of others to develop and evaluate mathematical arguments, including making arguments and counterarguments and making connections to other contexts.</p>	<p><b>Unit 3:</b> 1.2, 1.5, 1.6, 1.7, 1.8, 2.3, 2.4, 2.6, 2.7, 2.8, 3.1, 3.2, 3.3, 3.4, 3.7  <b>Unit 7:</b> 1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6</p>

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<p align="center"><b>Oklahoma Academic Standards for Mathematics Grade 2</b></p>	<p align="center"><b>Investigations 3 in Number, Data, and Space ©2017, Grade 2</b></p>
<p>Develop a Productive Mathematical Disposition Hold the belief that mathematics is sensible, useful and worthwhile. Students will develop the habit of looking for and making use of patterns and mathematical structures. They will persevere and become resilient, effective problem solvers.</p>	<p><b>Unit 1:</b> 1.1, 1.2, 1.4, 2.1, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 4.1, 4.2 <b>Unit 8:</b> 1.1, 1.3, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8</p>
<p>Develop the Ability to Make Conjectures, Model, and Generalize Make predictions and conjectures and draw conclusions throughout the problem solving process based on patterns and the repeated structures in mathematics. Students will create, identify, and extend patterns as a strategy for solving and making sense of problems.</p>	<p><b>Unit 2:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.3, 2.5, 3.5 <b>Unit 5:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7</p>
<p>Develop the Ability to Communicate Mathematically Students will discuss, write, read, interpret and translate ideas and concepts mathematically. As they progress, students' ability to communicate mathematically will include their increased use of mathematical language and terms and analysis of mathematical definitions.</p>	<p><b>Unit 2:</b> 1.1, 1.2, 1.3, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5 <b>Unit 7:</b> 1.2, 1.3, 1.4, 2.1, 2.3, 2.6</p>
<p><b>Number &amp; Operations (N)</b></p>	
<p><b>2.N.1 Compare and represent whole numbers up to 1,000 with an emphasis on place value and equality.</b></p>	
<p>2.N.1.1 Read, write, discuss, and represent whole numbers up to 1,000. Representations may include numerals, words, pictures, tally marks, number lines and manipulatives.</p>	<p><b>Unit 1:</b> 1.4, 1.5, 1.6, 2.6, 3.2 <b>Unit 2:</b> 2.3 <b>Unit 3:</b> 1.5, 1.6, 1.7, 1.8, 3.3, 3.5 <b>Unit 5:</b> 1.2, 2.2, 2.4, 2.6, 3.2, 3.5, 3.6, 3.7 <b>Unit 6:</b> 1.1, 1.2, 1.4, 1.5, 2.2 <b>Unit 7:</b> 1.1, 2.1 <b>Unit 8:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 2.9</p>
<p>2.N.1.2 Use knowledge of number relationships to locate the position of a given whole number on an open number line up to 100.</p>	<p><b>Unit 1:</b> 1.1, 1.6, 2.1, 4.5 <b>Unit 3:</b> 1.8, 2.2 <b>Unit 5:</b> 2.1, 2.2, 2.5 <b>Unit 7:</b> 1.3 <b>Unit 8:</b> 1.1, 1.2, 1.3, 1.7, 1.8</p>

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<b>Oklahoma Academic Standards for Mathematics Grade 2</b>	<b>Investigations 3 in Number, Data, and Space ©2017, Grade 2</b>
2.N.1.3 Use place value to describe whole numbers between 10 and 1,000 in terms of hundreds, tens and ones. Know that 100 is 10 tens, and 1,000 is 10 hundreds.	<b>Unit 5:</b> 2.3, 2.4, 2.5, 2.6, 3.2, 3.6, 3.7 <b>Unit 6:</b> 1.1, 1.2, 1.4, 1.5, 2.2 <b>Unit 7:</b> 1.1, 2.1 <b>Unit 8:</b> 1.11, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9
2.N.1.4 Find 10 more or 10 less than a given three-digit number. Find 100 more or 100 less than a given three-digit number.	<b>Unit 3:</b> 3.5, 3.6 <b>Unit 5:</b> 1.6, 2.3, 2.4, 2.5, 2.6, 3.3, 3.5, 3.6, 3.7
2.N.1.5 Recognize when to round numbers to the nearest 10 and 100.	For related content, please see: <b>Unit 5:</b> 1.3, 1.4, 1.5, 1.6, 3.5, 3.8 <b>Unit 8:</b> 1.10, 1.11, 2.8
2.N.1.6 Use place value to compare and order whole numbers up to 1,000 using comparative language, numbers, and symbols (e.g., $425 > 276$ , $73 < 107$ , page 351 comes after page 350, 753 is between 700 and 800).	<b>Unit 3:</b> 3.3, 3.5 <b>Unit 5:</b> 1.3, 1.4, 1.5, 1.6, 2.2, 2.3, 2.4, 2.5, 2.6, 3.5, 3.8 <b>Unit 6:</b> 1.1, 1.4 <b>Unit 7:</b> 1.1, 2.1 <b>Unit 8:</b> 2.1
<b>2.N.2 Add and subtract one- and two- digit numbers in real-world and mathematical problems.</b>	
2.N.2.1 Use the relationship between addition and subtraction to generate basic facts up to 20.	<b>Unit 1:</b> 2.6, 3.2, 3.4, 4.2 <b>Unit 3:</b> 1.1, 1.5, 2.8, 3.7 <b>Unit 5:</b> 1.6 <b>Unit 8:</b> 1.6, 1.7, 1.8, 1.9
2.N.2.2 Demonstrate fluency with basic addition facts and related subtraction facts up to 20.	<b>Unit 1:</b> 1.1, 1.4, 1.6, 2.2, 2.4, 2.6, 2.8, 3.2, 3.3, 3.7, 4.2, 4.4, 4.5 <b>Unit 2:</b> 1.1, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1 <b>Unit 3:</b> 1.1, 1.3, 1.6, 1.7, 2.2, 2.6, 2.8, 3.2, 3.5, 3.7 <b>Unit 4:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.4, 2.5 <b>Unit 5:</b> 1.1, 1.3, 1.5, 1.6, 2.1, 2.3, 3.3, 3.7 <b>Unit 6:</b> 1.6, 2.3, 2.6 <b>Unit 7:</b> 1.1, 1.3, 2.1, 2.3, 2.5, 2.6 <b>Unit 8:</b> 1.2, 1.3, 1.5, 1.9, 2.1, 2.3, 2.5, 2.7, 2.8
2.N.2.3 Estimate sums and differences up to 100.	<b>Unit 5:</b> 1.3, 1.4, 1.5, 1.6, 3.5, 3.8 <b>Unit 8:</b> 1.4, 1.5, 1.6, 1.9, 1.10, 1.11, 2.2, 2.4, 2.8

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<p align="center"><b>Oklahoma Academic Standards for Mathematics Grade 2</b></p>	<p align="center"><b>Investigations 3 in Number, Data, and Space ©2017, Grade 2</b></p>
<p>2.N.2.4 Use strategies and algorithms based on knowledge of place value and equality to add and subtract two-digit numbers.</p>	<p><b>Unit 1:</b> 2.4, 2.7, 3.6  <b>Unit 2:</b> 3.4  <b>Unit 3:</b> 1.4, 1.5, 1.7, 2.3, 2.5, 2.7, 2.8, 3.1, 3.2, 3.4, 3.6, 3.7  <b>Unit 4:</b> 1.1, 2.5  <b>Unit 5:</b> 1.1, 1.2, 1.5, 2.1, 2.4, 2.5, 3.1, 3.4, 3.5, 3.6, 3.7, 3.8  <b>Unit 6:</b> 1.1, 1.2, 1.4, 1.5, 1.6, 2.1, 2.5, 2.6  <b>Unit 7:</b> 1.1, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6  <b>Unit 8:</b> 1.1, 1.2, 1.4, 1.6, 1.7, 1.9, 1.11, 2.6</p>
<p>2.N.2.5 Solve real-world and mathematical addition and subtraction problems involving whole numbers up to 2 digits.</p>	<p><b>Unit 1:</b> 2.3, 2.4, 3.3, 3.6, 3.7, 4.1, 4.4, 4.5  <b>Unit 2:</b> 1.3, 1.4, 2.1, 3.1, 3.3  <b>Unit 3:</b> 1.2, 1.4, 1.5, 1.8, 2.2, 2.3, 2.6, 2.8, 3.1, 3.3, 3.5, 3.7  <b>Unit 4:</b> 1.1, 1.3, 1.5, 1.6, 2.1, 2.2, 2.6  <b>Unit 5:</b> 1.3, 1.5, 1.6, 3.1, 3.2, 3.5, 3.6, 3.7, 3.8  <b>Unit 6:</b> 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.4, 2.5, 2.6  <b>Unit 7:</b> 1.1, 1.3, 1.4  <b>Unit 8:</b> 1.1, 1.2, 1.3, 1.7, 1.8, 1.10, 1.11, 2.1, 2.3, 2.5, 2.6, 2.7</p>
<p>2.N.2.6 Use concrete models and structured arrangements, such as repeated addition, arrays and ten frames to develop understanding of multiplication.</p>	<p><b>Unit 7:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 2.6</p>
<p><b>2.N.3 Explore the foundational ideas of fractions.</b></p>	
<p>2.N.3.1 Identify the parts of a set and area that represent fractions for halves, thirds, and fourths.</p>	<p><b>Unit 2:</b> 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8</p>
<p>2.N.3.2 Construct equal-sized portions through fair sharing including length, set, and area models for halves, thirds, and fourths.</p>	<p><b>Unit 2:</b> 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8</p>
<p><b>2.N.4 Determine the value of a set of coins.</b></p>	
<p>2.N.4.1 Determine the value of a collection(s) of coins up to one dollar using the cent symbol.</p>	<p><b>Unit 1:</b> 3.3, 3.4, 3.5, 3.6, 3.7  <b>Unit 2:</b> 1.1  <b>Unit 3:</b> 1.3, 1.4, 1.5, 2.5, 2.7, 2.8, 3.1, 3.2  <b>Unit 4:</b> 2.6  <b>Unit 5:</b> 1.4, 1.5, 1.6, 2.2  <b>Unit 8:</b> 1.4, 1.5, 1.6, 1.7, 1.9, 1.10, 1.11, 2.6, 2.9</p>

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2.N.4.2 Use a combination of coins to represent a given amount of money up to one dollar.	<b>Unit 1:</b> 3.3, 3.4, 3.5, 3.6, 3.7 <b>Unit 2:</b> 1.1 <b>Unit 3:</b> 1.3, 1.4, 1.5, 2.5, 2.7, 2.8, 2.9 <b>Unit 5:</b> 1.4, 1.5, 1.6, 2.2 <b>Unit 8:</b> 1.4, 1.5, 1.6, 1.7, 1.9, 1.10, 1.11, 2.6, 2.9
<b>Algebraic Reasoning &amp; Algebra (A)</b>	
<b>2.A.1 Describe the relationship found in patterns to solve real-world and mathematical problems.</b>	
2.A.1.1 Represent, create, describe, complete, and extend growing and shrinking patterns with quantity and numbers in a variety of real-world and mathematical contexts.	<b>Unit 1:</b> 1.2, 1.4, 1.5, 1.6, 2.1, 3.3, 3.4, 3.5, 3.6, 3.7
2.A.1.2 Represent and describe repeating patterns involving shapes in a variety of contexts.	<b>Unit 1:</b> 1.2, 1.4, 1.5, 1.6, 2.1, 3.3, 3.4, 3.5, 3.6, 3.7
<b>2.A.2 Use number sentences involving unknowns to represent and solve real-world and mathematical problems.</b>	
2.A.2.1 Use objects and number lines to represent number sentences.	<b>Unit 1:</b> 4.1, 4.2, 4.3, 4.4, 4.5 <b>Unit 3:</b> 2.4, 2.6, 2.8, 3.1 <b>Unit 5:</b> 3.1, 3.4, 3.5 <b>Unit 8:</b> 1.7, 2.1, 2.4
2.A.2.2 Generate real-world situations to represent number sentences and vice versa.	<b>Unit 1:</b> 2.3, 2.4, 3.3, 3.6, 3.7, 4.1, 4.4, 4.5 <b>Unit 2:</b> 1.3, 1.4, 2.1, 3.1, 3.3 <b>Unit 3:</b> 1.2, 1.4, 1.5, 1.8, 2.2, 2.3, 2.6, 2.8, 3.1, 3.3, 3.5, 3.7 <b>Unit 4:</b> 1.1, 1.3, 1.5, 1.6, 2.1, 2.2, 2.6 <b>Unit 5:</b> 1.3, 1.5, 1.6, 3.1, 3.2, 3.5, 3.6, 3.7, 3.8 <b>Unit 6:</b> 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.4, 2.5, 2.6 <b>Unit 7:</b> 1.1, 1.3, 1.4 <b>Unit 8:</b> 1.1, 1.2, 1.3, 1.7, 1.8, 1.10, 1.11, 2.1, 2.3, 2.5, 2.6, 2.7
2.A.2.3 Apply commutative and identity properties and number sense to find values for unknowns that make number sentences involving addition and subtraction true or false.	<b>Unit 1:</b> 2.2, 2.3, 3.2, 4.1, 4.5 <b>Unit 3:</b> 1.2, 1.4, 1.5, 1.6, 1.7, 3.1, 3.2, 3.3, 3.4, 3.7 <b>Unit 5:</b> 3.1, 3.4, 3.5 <b>Unit 8:</b> 1.10, 1.11, 2.2, 2.4, 2.8

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<b>Geometry &amp; Measurement (GM)</b>	
<b>2.GM.1 Analyze attributes of two- dimensional figures and develop generalizations about their properties.</b>	
2.GM.1.1 Recognize trapezoids and hexagons.	<b>Unit 1:</b> 1.2, 1.3, 1.4, 1.5 <b>Unit 2:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1
2.GM.1.2 Describe, compare, and classify two-dimensional figures according to their geometric attributes.	<b>Unit 1:</b> 1.2, 1.3, 1.4, 1.5 <b>Unit 2:</b> 1.1, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1
2.GM.1.3 Compose two-dimensional shapes using triangles, squares, hexagons, trapezoids, and rhombi.	<b>Unit 2:</b> 1.1, 1.4, 1.5, 2.3, 2.4, 2.6
2.GM.1.4 Recognize right angles and classify angles as smaller or larger than a right angle.	<b>Unit 2:</b> 2.2, 2.4
<b>2.GM.2 Understand length as a measurable attribute and explore capacity.</b>	
2.GM.2.1 Explain the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object.	<b>Unit 6:</b> 2.3, 2.4, 2.5, 2.6
2.GM.2.2 Explain the relationship between length and the numbers on a ruler by using a ruler to measure lengths to the nearest whole unit.	<b>Unit 6:</b> 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6
2.GM.2.3 Explore how varying shapes and styles of containers can have the same capacity.	This standard is covered in Investigations 3 in Number, Data, and Space Grade 3. Please see: <b>Unit 3:</b> 1.1
<b>2.GM.3 Tell time to the quarter hour.</b>	
2.GM.3.1 Read and write time to the quarter-hour on an analog and digital clock. Distinguish between a.m. and p.m.	<b>Unit 1:</b> 1.6, 2.1, 2.5, 2.7, 3.1, 4.1, 4.3, 4.4 <b>Unit 2:</b> 1.3, 2.2, 3.7 <b>Unit 3:</b> 2.4, 3.4, 3.6 <b>Unit 4:</b> 1.3, 1.6, 2.3 <b>Unit 5:</b> 1.1, 1.6, 3.1 <b>Unit 6:</b> 1.1 <b>Unit 7:</b> 1.2, 1.4, 2.3, 2.4, 2.5 <b>Unit 8:</b> 1.1, 1.4, 1.7, 1.8, 1.9

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<b>Data &amp; Probability (D)</b>	
<b>2.D.1 Collect, organize, and interpret data.</b>	
2.D.1.1 Explain that the length of a bar in a bar graph or the number of objects in a picture graph represents the number of data points for a given category.	<b>Unit 4:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4
2.D.1.2 Organize a collection of data with up to four categories using pictographs and bar graphs with intervals of 1s, 2s, 5s or 10s.	<b>Unit 4:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4
2.D.1.3 Write and solve one-step word problems involving addition or subtraction using data represented within pictographs and bar graphs with intervals of one.	<b>Unit 4:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4
2.D.1.4 Draw conclusions and make predictions from information in a graph.	<b>Unit 4:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4



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**Grade 3 Units**

**Unit 1** - Understanding Equal Groups

**Unit 2** Graphs and Line Plots

**Unit 3** - Travel Stories and Collections

**Unit 4** - Perimeter, Area, and Polygons

**Unit 5** - Cube Patterns, Arrays, and Multiples of 10

**Unit 6** - Fair Shares and Fractions on Number Lines

**Unit 7** - How Many Miles?

**Unit 8** Larger Numbers and Multi-Step Problems

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<b>Math Actions and Processes</b>	
<p><b>Develop a Deep and Flexible Conceptual Understanding</b> Demonstrate a deep and flexible conceptual understanding of mathematical concepts, operations, and relations while making mathematical and real-world connections. Students will develop an understanding of how and when to apply and use the mathematics they know to solve problems.</p>	<p><b>Unit 1:</b> 1.1, 1.3, 1.4, 2.3, 2.4, 2.5, 4.6 <b>Unit 7:</b> 1.4, 1.5, 1.6, 1.7, 3.1, 3.4, 3.5</p>
<p><b>Develop Accurate and Appropriate Procedural Fluency</b> Learn efficient procedures and algorithms for computations and repeated processes based on a strong sense of numbers. Develop fluency in addition, subtraction, multiplication, and division of numbers and expressions. Students will generate a sophisticated understanding of the development and application of algorithms and procedures.</p>	<p><b>Unit 1:</b> 3.3, 3.4, 3.5, 3.6, 3.7, 4.5, 4.6 <b>Unit 5:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.2, 3.4, 3.5, 3.6 <b>Unit 8:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5</p>
<p><b>Develop Strategies for Problem Solving</b> Analyze the parts of complex mathematical tasks and identify entry points to begin the search for a solution. Students will select from a variety of problem solving strategies and use corresponding multiple representations (verbal, physical, symbolic, pictorial, graphical, tabular) when appropriate. They will pursue solutions to various tasks from real-world situations and applications that are often interdisciplinary in nature. They will find methods to verify their answers in context and will always question the reasonableness of solutions.</p>	<p><b>Unit 1:</b> 1.1, 1.3, 1.4, 2.3, 2.4, 2.5, 4.6 <b>Unit 3:</b> 1.2, 1.3, 1.4, 3.1, 4.2, 5.3, 5.5 <b>Unit 5:</b> 1.2, 2.1, 2.3, 3.4, 3.5 <b>Unit 7:</b> 1.4, 1.5, 1.6, 1.7, 3.1, 3.4, 3.5</p>
<p><b>Develop Mathematical Reasoning</b> Explore and communicate a variety of reasoning strategies to think through problems. Students will apply their logic to critique the thinking and strategies of others to develop and evaluate mathematical arguments, including making arguments and counterarguments and making connections to other contexts.</p>	<p><b>Unit 3:</b> 1.2, 1.3, 1.4, 3.1, 4.2, 5.3, 5.5 <b>Unit 5:</b> 1.2, 2.1, 2.3, 3.4, 3.5</p>

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<p><b>Develop a Productive Mathematical Disposition</b> Hold the belief that mathematics is sensible, useful and worthwhile. Students will develop the habit of looking for and making use of patterns and mathematical structures. They will persevere and become resilient, effective problem solvers.</p>	<p><b>Unit 6:</b> 1.3, 1.4, 1.5, 1.7, 1.8 <b>Unit 8:</b> 1.1, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5</p>
<p><b>Develop the Ability to Make Conjectures, Model, and Generalize</b> Make predictions and conjectures and draw conclusions throughout the problem solving process based on patterns and the repeated structures in mathematics. Students will create, identify, and extend patterns as a strategy for solving and making sense of problems.</p>	<p><b>Unit 3:</b> 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 4.2, 5.2, 5.4, 5.5 <b>Unit 5:</b> 1.1, 1.5, 2.1, 2.2, 2.5, 2.6, 3.2, 3.5</p>
<p><b>Develop the Ability to Communicate Mathematically</b> Students will discuss, write, read, interpret and translate ideas and concepts mathematically. As they progress, students' ability to communicate mathematically will include their increased use of mathematical language and terms and analysis of mathematical definitions.</p>	<p><b>Unit 4:</b> 2.2, 2.3, 2.5, 2.6, 2.7, 3.2, 3.3 <b>Unit 7:</b> 1.5, 1.6, 1.7, 2.1, 2.5, 3.3, 3.4</p>
<b>Number &amp; Operations (N)</b>	
<b>3.N.1 Compare and represent whole numbers up to 100,000 with an emphasis on place value and equality.</b>	
<p>3.N.1.1 Read, write, discuss, and represent whole numbers up to 100,000. Representations may include numerals, expressions with operations, words, pictures, number lines, and manipulatives.</p>	<p>For related content, please see: <b>Unit 3:</b> 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 5.2</p>
<p>3.N.1.2 Use place value to describe whole numbers between 1,000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones, including expanded form.</p>	<p><b>Unit 3:</b> 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 5.2</p>
<p>3.N.1.3 Find 10,000 more or 10,000 less than a given five-digit number. Find 1,000 more or 1,000 less than a given four- or five-digit number. Find 100 more or 100 less than a given four- or five-digit number.</p>	<p>For related content, please see: <b>Unit 3:</b> 2.1, 2.2, 2.3, 2.4</p>

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3.N.1.4 Use place value to compare and order whole numbers up to 100,000, using comparative language, numbers, and symbols.	For related content, please see: <b>Unit 3:</b> 2.1, 2.2, 5.1, 5.2, 5.6
3.N.2 Add and subtract multi-digit whole numbers; multiply with factors up to 10; represent multiplication and division in various ways; Solve real-world and mathematical problems through the representation of related operations.	
3.N.2.1 Represent multiplication facts by using a variety of approaches, such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line and skip counting.	<b>Unit 1:</b> 1.1, 1.2, 1.3, 1.4, 2.2, 2.4, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7 <b>Unit 5:</b> 1.1, 1.2, 2.1, 2.2 <b>Unit 8:</b> 2.2
3.N.2.2 Demonstrate fluency of multiplication facts with factors up to 10.	<b>Unit 1:</b> 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.6, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6 <b>Unit 5:</b> 1.3, 1.4, 1.5, 2.3, 2.4, 2.5, 2.6, 3.3, 3.4, 3.6 <b>Unit 8:</b> 1.1, 1.2, 1.3, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5
3.N.2.3 Use strategies and algorithms based on knowledge of place value and equality to fluently add and subtract multi-digit numbers.	<b>Unit 1:</b> 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 4.3, 4.5 <b>Unit 2:</b> 1.2, 1.4, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4 <b>Unit 3:</b> 1.1, 1.4, 1.5, 2.3, 2.4, 3.3, 3.5, 4.1, 4.4, 5.2, 5.6 <b>Unit 4:</b> 1.1, 1.3, 2.4, 2.5, 2.6, 3.1, 3.3, 3.5 <b>Unit 5:</b> 1.1, 1.3, 1.5, 2.1, 2.2, 2.5, 3.5, 3.6 <b>Unit 6:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3 <b>Unit 7:</b> 1.1, 1.3, 1.5, 1.7, 2.1, 2.2, 2.5, 3.2, 3.5, 3.6 <b>Unit 8:</b> 1.1, 2.2, 2.3, 2.4, 2.5, 3.1
3.N.2.4 Recognize when to round numbers and apply understanding to round numbers to the nearest ten thousand, thousand, hundred, and ten and use compatible numbers to estimate sums and differences.	<b>Unit 3:</b> 3.2, 3.3, 3.4, 3.5 <b>Unit 4:</b> 1.1, 1.3, 1.5, 2.4, 2.5, 2.6, 3.2, 3.5 <b>Unit 5:</b> 1.3, 1.4, 1.5, 2.1, 2.2, 3.5, 3.6 <b>Unit 7:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 3.4, 3.5, 3.6 <b>Unit 8:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3
3.N.2.5 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.	<b>Unit 3:</b> 1.2, 1.5, 2.3, 2.4, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2, 4.3, 4.4, 4.5, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6 <b>Unit 5:</b> 1.3 <b>Unit 7:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6
3.N.2.6 Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups.	<b>Unit 1:</b> 4.1, 4.2, 4.3, 4.5, 4.6 <b>Unit 5:</b> 1.2, 1.3, 1.4, 1.5, 3.6 <b>Unit 8:</b> 1.1, 1.3

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3.N.2.7 Recognize the relationship between multiplication and division to represent and solve real-world problems.	<b>Unit 1:</b> 1.1, 1.2, 1.3, 1.4, 2.3, 2.4, 2.5, 2.6, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6 <b>Unit 5:</b> 1.4, 1.5, 2.5, 2.6, 3.1, 3.2, 3.3, 3.5, 3.6 <b>Unit 8:</b> 1.1, 1.3, 1.4, 1.5, 1.6, 2.1, 2.3, 2.4, 2.5
3.N.2.8 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two-digit number by a one-digit number.	<b>Unit 8:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 3.2, 3.3, 3.4, 3.5
<b>3.N.3 Understand meanings and uses of fractions in real-world and mathematical situations.</b>	
3.N.3.1 Read and write fractions with words and symbols.	<b>Unit 6:</b> 1.1, 1.2, 1.3, 1.4, 1.7, 1.8, 2.1, 2.3, 2.4, 2.5 <b>Unit 7:</b> 1.3, 1.5, 3.5
3.N.3.2 Construct fractions using length, set, and area models.	<b>Unit 6:</b> 1.4, 1.5, 1.7, 2.1, 2.3, 2.4 <b>Unit 7:</b> 2.4 <b>Unit 8:</b> 3.4
3.N.3.3 Recognize unit fractions and use them to compose and decompose fractions related to the same whole. Use the numerator to describe the number of parts and the denominator to describe the number of partitions.	<b>Unit 6:</b> 1.3, 1.4, 1.7, 1.8, 2.1, 2.3
3.N.3.4 Use models and number lines to order and compare fractions that are related to the same whole.	<b>Unit 6:</b> 1.2, 2.2, 2.3, 2.4, 2.5 <b>Unit 7:</b> 1.4, 2.4, 3.5 <b>Unit 8:</b> 3.4
<b>3.N.4 Determine the value of a set of coins or bills.</b>	
3.N.4.1 Use addition to determine the value of a collection of coins up to one dollar using the cent symbol and a collection of bills up to twenty dollars.	For related content, please see: <b>Unit 3:</b> 1.3 <b>Unit 7:</b> 2.1, 3.3, 3.5, 3.6
3.N.4.2 Select the fewest number of coins for a given amount of money up to one dollar.	For related content, please see: <b>Unit 3:</b> 1.3, 3.1 <b>Unit 7:</b> 2.1, 3.3, 3.5, 3.6

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Oklahoma Academic Standards for mathematics Grade 3	Investigations 3 in Number, Data, and Space ©2017, Grade 3
<b>Algebraic Reasoning &amp; Algebra (A)</b>	
<b>3.A.1 Describe and create representations of numerical and geometric patterns.</b>	
3.A.1.1 Create, describe, and extend patterns involving addition, subtraction, or multiplication to solve problems in a variety of contexts.	<b>Unit 1:</b> 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.5, 3.6, 3.7 <b>Unit 3:</b> 1.4, 2.1 <b>Unit 5:</b> 1.1, 1.2, 1.3, 3.1, 3.2 <b>Unit 6:</b> 2.5 <b>Unit 7:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 3.1, 3.2, 3.3 <b>Unit 8:</b> 3.1, 3.2, 3.3, 3.4, 3.5
3.A.1.2 Describe the rule (single operation) for a pattern from an input/output table or function machine involving addition, subtraction, or multiplication.	This standard is covered in Investigations 3 in Number, Data, and Space Grade 4. Please see: <b>Unit 2:</b> 1.4 <b>Unit 8:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10
3.A.1.3 Explore and develop visual representations of growing geometric patterns and construct the next steps.	For related content, please see: <b>Unit 1:</b> 1.1, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.2, 3.4, 3.5 <b>Unit 7:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 3.1, 3.2, 3.3
<b>3.A.2 Use number sentences involving multiplication and unknowns to represent and solve real-world and mathematical problems.</b>	
3.A.2.1 Find unknowns represented by symbols in arithmetic problems by solving one-step open sentences (equations) and other problems involving addition, subtraction, and multiplication. Generate real-world situations to represent number sentences.	<b>Unit 8:</b> 3.4, 3.5
3.A.2.2 Recognize, represent and apply the number properties (commutative, identity, and associative properties of addition and multiplication) using models and manipulatives to solve problems.	<b>Unit 1:</b> 1.4, 2.2, 2.6, 3.1, 3.2 <b>Unit 3:</b> 1.2 <b>Unit 5:</b> 2.1, 2.3 <b>Unit 7:</b> 2.4, 2.5
<b>Geometry &amp; Measurement (GM)</b>	
<b>3.GM.1 Use geometric attributes to describe and create shapes in various contexts.</b>	
3.GM.1.1 Sort three-dimensional shapes based on attributes.	For related content, please see: <b>Unit 4:</b> 3.1, 3.2, 3.3, 3.4, 3.5
3.GM.1.2 Build a three-dimensional figure using unit cubes when picture/shape is shown.	For related content, please see: <b>Unit 4:</b> 1.5, 3.3, 3.4, 3.5
3.GM.1.3 Classify angles as acute, right, obtuse, and straight.	<b>Unit 4:</b> 3.1, 3.2, 3.3, 3.4, 3.5

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<b>3.GM.2 Understand measurable attributes of real-world and mathematical objects using various tools.</b>	
3.GM.2.1 Find perimeter of polygon, given whole number lengths of the sides, in real-world and mathematical situations.	<b>Unit 4:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 2.4, 3.4, 3.5
3.GM.2.2 Develop and use formulas to determine the area of rectangles. Justify why length and width are multiplied to find the area of a rectangle by breaking the rectangle into one unit by one unit squares and viewing these as grouped into rows and columns.	<b>Unit 1:</b> 3.1, 3.2, 3.3, 3.4 <b>Unit 4:</b> 2.4, 2.5, 2.6, 2.7 <b>Unit 5:</b> 1.2
3.GM.2.3 Choose an appropriate measurement instrument and measure the length of objects to the nearest whole centimeter or meter.	<b>Unit 2:</b> 2.2, 2.3, 2.4, 2.5, 2.6 <b>Unit 6:</b> 1.6
3.GM.2.4 Choose an appropriate measurement instrument and measure the length of objects to the nearest whole yard, whole foot, or half inch.	<b>Unit 2:</b> 2.2, 2.3, 2.4, 2.5, 2.6 <b>Unit 6:</b> 1.6
3.GM.2.5 Using common benchmarks, estimate the lengths (customary and metric) of a variety of objects.	<b>Unit 2:</b> 2.2, 2.3, 2.4, 2.5, 2.6 <b>Unit 6:</b> 1.6
3.GM.2.6 Use an analog thermometer to determine temperature to the nearest degree in Fahrenheit and Celsius.	This standard is covered in Investigations 3 in Number, Data, and Space Grade 4. Please see: <b>Unit 2:</b> 2.6
3.GM.2.7 Count cubes systematically to identify number of cubes needed to pack the whole or half of a three-dimensional structure.	For related content, please see: <b>Unit 4:</b> 2.2, 2.3, 2.4, 2.6
3.GM.2.8 Find the area of two-dimensional figures by counting total number of same size unit squares that fill the shape without gaps or overlaps.	<b>Unit 4:</b> 2.2, 2.3, 2.4, 2.5, 2.6, 2.7
<b>3.GM.3 Solve problems by telling time to the nearest 5 minutes.</b>	
3.GM.3.1 Read and write time to the nearest 5-minute (analog and digital).	<b>Unit 3:</b> 4.1, 4.2, 4.3, 4.4, 4.5, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6 <b>Unit 6:</b> 1.6, 1.7, 1.8, 2.4, 2.5 <b>Unit 8:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 3.4, 3.5

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3.GM.3.2 Determine the solutions to problems involving addition and subtraction of time in intervals of 5 minutes, up to one hour, using pictorial models, number line diagrams, or other tools.	<b>Unit 3:</b> 4.1, 4.2, 4.3, 4.4, 4.5, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6 <b>Unit 6:</b> 2.4, 2.5 <b>Unit 8:</b> 1.4, 1.5, 1.6, 3.4, 3.5
<b>Data &amp; Probability (D)</b>	
<b>3.D.1 Summarize, construct, and analyze data.</b>	
3.D.1.1 Summarize and construct a data set with multiple categories using a frequency table, line plot, pictograph, and/or bar graph with scaled intervals.	<b>Unit 2:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.5, 1.6, 1.7, 1.8, 1.9, 2.5, 2.6 <b>Unit 3:</b> 1.1 <b>Unit 8:</b> 3.2
3.D.1.2 Solve one- and two-step problems using categorical data represented with a frequency table, pictograph, or bar graph with scaled intervals.	<b>Unit 2:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.5, 1.6, 1.7, 1.8, 1.9, 2.5, 2.6 <b>Unit 3:</b> 1.1 <b>Unit 8:</b> 3.2



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**Grade 4 Units**

**Unit 1** - Arrays, Factors, and Multiplicative Comparison

**Unit 2** - Generating and Representing Measurement Data

**Unit 3** - Multiple Towers and Cluster Problems

**Unit 4** - Measuring and Classifying Shapes

**Unit 5** - Large Numbers and Landmarks

**Unit 6** - Fraction Cards and Decimal Grids

**Unit 7** - How Many Packages and Groups?

**Unit 8** - Penny Jars and Towers

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<b>Math Actions and Processes</b>	
<p><b>Develop a Deep and Flexible Conceptual Understanding</b> Demonstrate a deep and flexible conceptual understanding of mathematical concepts, operations, and relations while making mathematical and real-world connections. Students will develop an understanding of how and when to apply and use the mathematics they know to solve problems.</p>	<p><b>Unit 1:</b> 1.1, 1.5, 1.6, 1.8, 2.1  <b>Unit 7:</b> 1.1, 1.3, 1.6, 1.7, 2.1, 2.2, 3.3, 3.4</p>
<p><b>Develop Accurate and Appropriate Procedural Fluency</b>  Learn efficient procedures and algorithms for computations and repeated processes based on a strong sense of numbers. Develop fluency in addition, subtraction, multiplication, and division of numbers and expressions. Students will generate a sophisticated understanding of the development and application of algorithms and procedures.</p>	<p><b>Unit 1:</b> 2.1, 2.2, 2.3, 2.4  <b>Unit 3:</b> 1.1, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7  <b>Unit 5:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.4, 3.5, 3.6</p>
<p><b>Develop Strategies for Problem Solving</b>  Analyze the parts of complex mathematical tasks and identify entry points to begin the search for a solution. Students will select from a variety of problem solving strategies and use corresponding multiple representations (verbal, physical, symbolic, pictorial, graphical, tabular) when appropriate. They will pursue solutions to various tasks from real-world situations and applications that are often interdisciplinary in nature. They will find methods to verify their answers in context and will always question the reasonableness of solutions.</p>	<p><b>Unit 1:</b> 1.1, 1.5, 1.6, 1.8, 2.1  <b>Unit 3:</b> 1.1, 1.4, 2.1, 2.2, 2.3, 3.3  <b>Unit 7:</b> 1.1, 1.2, 1.3, 1.4, 1.6, 1.7, 2.1, 2.2, 2.4, 2.5, 3.1, 3.3, 3.4, 3.5</p>
<p><b>Develop Mathematical Reasoning</b>  Explore and communicate a variety of reasoning strategies to think through problems. Students will apply their logic to critique the thinking and strategies of others to develop and evaluate mathematical arguments, including making arguments and counterarguments and making connections to other contexts.</p>	<p><b>Unit 3:</b> 1.1, 1.4, 2.1, 2.2, 2.3, 3.3  <b>Unit 7:</b> 1.2, 1.4, 1.5, 2.1, 2.4, 2.5, 3.1, 3.5</p>

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<b>Oklahoma Academic Standards for Mathematics Grade 4</b>	<b>Investigations 3 in Number, Data, and Space ©2017, Grade 4</b>
<p><b>Develop a Productive Mathematical Disposition</b> Hold the belief that mathematics is sensible, useful and worthwhile. Students will develop the habit of looking for and making use of patterns and mathematical structures. They will persevere and become resilient, effective problem solvers.</p>	<p><b>Unit 4:</b> 1.3, 1.4, 3.3, 3.4, 4.3, 4.5 <b>Unit 5:</b> 1.6, 2.1, 2.6, 2.7, 3.5, 3.6</p>
<p><b>Develop the Ability to Make Conjectures, Model, and Generalize</b> Make predictions and conjectures and draw conclusions throughout the problem solving process based on patterns and the repeated structures in mathematics. Students will create, identify, and extend patterns as a strategy for solving and making sense of problems.</p>	<p><b>Unit 1:</b> 1.2, 1.3, 1.6, 2.1, 2.2 <b>Unit 2:</b> 1.1, 1.5, 2.1, 2.4 <b>Unit 8:</b> 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.8, 1.9</p>
<p><b>Develop the Ability to Communicate Mathematically</b> Students will discuss, write, read, interpret and translate ideas and concepts mathematically. As they progress, students' ability to communicate mathematically will include their increased use of mathematical language and terms and analysis of mathematical definitions.</p>	<p><b>Unit 2:</b> 1.2, 1.4, 1.5, 2.4, 2.5 <b>Unit 6:</b> 1.1, 1.2, 1.5, 1.6, 2.2, 1.4, 2.5, 2.6, 3.3, 3.6, 4.1, 4.3</p>
<b>Number &amp; Operations (N)</b>	
<b>4.N.1 Solve real-world and mathematical problems using multiplication and division.</b>	
<p>4.N.1.1 Demonstrate fluency with multiplication and division facts with factors up to 12.</p>	<p><b>Unit 1:</b> 2.1, 2.2, 2.3, 2.4 <b>Unit 3:</b> 1.1, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7</p>
<p>4.N.1.2 Use an understanding of place value to multiply or divide a number by 10, 100 and 1,000.</p>	<p><b>Unit 1:</b> 2.1, 2.2 <b>Unit 3:</b> 3.2, 3.3, 3.6, 3.7</p>
<p>4.N.1.3 Multiply 3-digit by 1-digit or a 2-digit by 2-digit whole numbers, using efficient and generalizable procedures and strategies, based on knowledge of place value, including but not limited to standard algorithms.</p>	<p><b>Unit 1:</b> 1.1, 1.3, 1.4, 1.6, 1.7, 1.8, 2.1, 2.4 <b>Unit 2:</b> 1.5 <b>Unit 3:</b> 1.1, 1.2, 1.3, 1.4, 2.1, 2.4, 2.6, 3.1, 3.2, 3.4, 3.6, 3.7 <b>Unit 4:</b> 1.1, 1.2, 2.4, 2.5, 3.2, 3.4, 4.1, 4.4, 4.5, 4.6 <b>Unit 7:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4, 2.5, 3.5 <b>Unit 8:</b> 1.1, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9</p>

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<b>Oklahoma Academic Standards for Mathematics Grade 4</b>	<b>Investigations 3 in Number, Data, and Space ©2017, Grade 4</b>
4.N.1.4 Estimate products of 3-digit by 1-digit or 2-digit by 2-digit whole numbers using rounding, benchmarks and place value to assess the reasonableness of results. Explore larger numbers using technology to investigate patterns.	<b>Unit 1:</b> 1.1, 1.3, 1.4, 1.6, 1.7, 1.8, 2.1, 2.4 <b>Unit 2:</b> 1.5 <b>Unit 3:</b> 1.1, 1.2, 1.3, 1.4, 2.1, 2.4, 2.6, 3.1, 3.2, 3.4, 3.6, 3.7 <b>Unit 4:</b> 1.1, 1.2, 2.4, 2.5, 3.2, 3.4, 4.1, 4.4, 4.5, 4.6 <b>Unit 7:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4, 2.5, 3.5 <b>Unit 8:</b> 1.1, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9
4.N.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction, and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of appropriate technology, and the context of the problem to assess the reasonableness of results.	<b>Unit 1:</b> 1.4, 2.2 <b>Unit 2:</b> 2.4 <b>Unit 3:</b> 1.1, 2.1, 3.6 <b>Unit 4:</b> 1.4, 1.5, 3.2 <b>Unit 5:</b> 2.3, 2.6, 2.7, 3.3, 3.4, 3.5, 3.6 <b>Unit 6:</b> 1.4, 2.3, 2.7 <b>Unit 7:</b> 1.2, 1.3, 2.1, 3.4, 3.5, 3.6 <b>Unit 8:</b> 1.1, 1.3, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10
4.N.1.6 Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide 3-digit dividend by 1-digit whole number divisors. (e.g., mental strategies, standard algorithms, partial quotients, repeated subtraction, the commutative, associative, and distributive properties).	<b>Unit 3:</b> 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.3, 3.4, 3.6, 3.7 <b>Unit 4:</b> 1.1, 1.3, 2.2, 2.4, 2.5, 3.2, 3.4, 4.5, 4.6 <b>Unit 5:</b> 1.5, 2.2, 2.7, 3.1 <b>Unit 7:</b> 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 <b>Unit 8:</b> 1.1, 1.3, 1.4, 1.5, 1.7, 1.8, 1.9
4.N.1.7 Determine the unknown addend(s) or factor(s) in equivalent and non-equivalent expressions. (e.g., $5 + 6 = 4 + \square$ , $3 \times 8 < 3 \times \square$ ).	<b>Unit 1:</b> 1.5, 1.6, 1.8, 2.3 <b>Unit 2:</b> 2.3 <b>Unit 3:</b> 2.5, 3.6 <b>Unit 4:</b> 2.2 <b>Unit 7:</b> 2.4, 2.5
<b>4.N.2 Represent and compare fractions and decimals in real-world and mathematical situations; use place value to understand how decimals represent quantities.</b>	
4.N.2.1 Represent and rename equivalent fractions using fraction models (e.g. parts of a set, area models, fraction strips, number lines).	<b>Unit 6:</b> 1.1, 1.2, 1.3, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.8
4.N.2.2 Use benchmark fractions ( $0, \frac{1}{4}, \frac{1}{3}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}, 1$ ) to locate additional fractions on a number line. Use models to order and compare whole numbers and fractions less than and greater than one using comparative language and symbols.	<b>Unit 6:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.6

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4.N.2.3 Decompose a fraction in more than one way into a sum of fractions with the same denominator using concrete and pictorial models and recording results with symbolic representations (e.g., $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ ).	<b>Unit 6:</b> 1.1, 1.2, 3.1
4.N.2.4 Use fraction models to add and subtract fractions with like denominators in real-world and mathematical situations.	<b>Unit 6:</b> 3.1, 3.2, 3.3, 3.4, 4.2, 4.3, 4.4
4.N.2.5 Represent tenths and hundredths with concrete models, making connections between fractions and decimals.	<b>Unit 6:</b> 1.3, 1.4, 1.5, 1.6, 2.7, 2.8, 3.5
4.N.2.6 Represent, read and write decimals up to at least the hundredths place in a variety of contexts including money.	<b>Unit 6:</b> 1.4, 1.5, 1.6, 2.2, 2.7, 2.8, 3.5, 3.
4.N.2.7 Compare and order decimals and whole numbers using place value, a number line and models such as grids and base 10 blocks.	<b>Unit 5:</b> 3.1, 3.2 <b>Unit 6:</b> 2.2
4.N.2.8 Compare benchmark fractions ( $\frac{1}{4}$ , $\frac{1}{3}$ , $\frac{1}{2}$ , $\frac{2}{3}$ , $\frac{3}{4}$ ) and decimals (0.25, 0.50, 0.75) in real-world and mathematical situations.	<b>Unit 6:</b> 1.4, 1.5, 1.6, 2.4, 2.6, 2.7, 2.8, 3.5, 3.6
<b>4.N.3 Determine the value of coins in order to solve monetary transactions.</b>	
4.N.3.1 Given a total cost (whole dollars up to \$20 or coins) and amount paid (whole dollars up to \$20 or coins), find the change required in a variety of ways. Limited to whole dollars up to \$20 or sets of coins.	For related content, please see: <b>Unit 6:</b> 3.5, 3.6
<b>Algebraic Reasoning &amp; Algebra (A)</b>	
<b>4.A.1 Use multiple representations of patterns to solve real-world and mathematical problems.</b>	
4.A.1.1 Create an input/output chart or table to represent or extend a numerical pattern.	<b>Unit 2:</b> 1.4 <b>Unit 8:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10
4.A.1.2 Describe the single operation rule for a pattern from an input/output table or function machine involving any operation of a whole number.	<b>Unit 2:</b> 1.4 <b>Unit 8:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10

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4.A.1.3 Create growth patterns involving geometric shapes and define the single operation rule of the pattern.	<b>Unit 8:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10
<b>4.A.2 Use multiplication and division with unknowns to create number sentences representing a given problem situation.</b>	
4.A.2.1 Use number sense, properties of multiplication and the relationship between multiplication and division to solve problems and find values for the unknowns represented by letters and symbols that make number sentences true.	<b>Unit 1:</b> 1.5, 1.6, 1.8 <b>Unit 3:</b> 1.4, 2.5, 3.6 <b>Unit 7:</b> 2.4, 2.5
4.A.2.2 Solve for unknowns in problems by solving open sentences (equations) and other problems involving addition, subtraction, multiplication, or division with whole numbers. Use real-world situations to represent number sentences and vice versa.	<b>Unit 3:</b> 2.6, 3.7 <b>Unit 4:</b> 4.6 <b>Unit 5:</b> 1.6, 2.5, 2.6, 2.7 <b>Unit 7:</b> 2.5, 3.2, 3.4, 3.5, 3.6, 3.6 <b>Unit 8:</b> 1.1, 1.6, 1.9
<b>Geometry &amp; Measurement (GM)</b>	
4.GM.1 Name, describe, classify and construct polygons, and three-dimensional figures.	
4.GM.1.1 Identify points, lines, line segments, rays, angles, endpoints, and parallel and perpendicular lines in various contexts.	<b>Unit 4:</b> 2.1, 2.2, 2.5, 3.2
4.GM.1.2 Describe, classify, and sketch quadrilaterals, including squares, rectangles, trapezoids, rhombuses, parallelograms, and kites. Recognize quadrilaterals in various contexts.	<b>Unit 4:</b> 2.1, 2.2, 2.3, 2.4, 2.5
4.GM.1.3 Given two three-dimensional shapes, identify similarities, and differences.	For related content, please see: <b>Unit 4:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 4.1
<b>4.GM.2 Understand angle, length, and area as measurable attributes of real world and mathematical objects. Use various tools to measure angles, length, area, and volume.</b>	
4.GM.2.1 Measure angles in geometric figures and real-world objects with a protractor or angle ruler.	<b>Unit 4:</b> 3.2, 3.3, 3.4, 4.5, 4.6
4.GM.2.2 Find the area of polygons that can be decomposed into rectangles.	<b>Unit 4:</b> 4.4

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4.GM.2.3 Using a variety of tools and strategies, develop the concept that the volume of rectangular prisms with whole-number edge lengths can be found by counting the total number of same-sized unit cubes that fill a shape without gaps or overlaps. Use appropriate measurements such as cm <sup>3</sup> .	For related content, please see: <b>Unit 4:</b> 4.4, 4.5
4.GM.2.4 Choose an appropriate instrument and measure the length of an object to the nearest whole centimeter or quarter-inch.	<b>Unit 4:</b> 1.1, 1.2, 1.3, 1.4, 1.5
4.GM.2.5 Solve problems that deal with measurements of length, when to use liquid volumes, when to use mass, temperatures above zero and money using addition, subtraction, multiplication, or division as appropriate (customary and metric).	<b>Unit 2:</b> 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.4, 2.5, 2.6 <b>Unit 4:</b> 1.3, 1.4, 1.5 <b>Unit 5:</b> 1.1, 1.2, 1.3, 2.1, 2.6, 2.7, 3.4, 3.5, 3.6 <b>Unit 6:</b> 3.5, 3.6, 4.2, 4.3, 4.4 <b>Unit 7:</b> 1.2, 1.6 <b>Unit 8:</b> 1.7, 1.8
<b>4.GM.3 Determine elapsed time and convert between units of time.</b>	
4.GM.3.1 Determine elapsed time.	<b>Unit 2:</b> 2.1 <b>Unit 7:</b> 1.1, 1.2, 1.3, 1.7, 2.1
4.GM.3.2 Solve problems involving the conversion of one measure of time to another.	<b>Unit 2:</b> 2.1 <b>Unit 7:</b> 1.1, 1.2, 1.3, 1.7, 2.1
<b>Data &amp; Probability (D)</b>	
<b>4.D.1 Collect, organize, and analyze data.</b>	
4.D.1.1 Represent data on a frequency table or line plot marked with whole numbers and fractions using appropriate titles, labels, and units.	<b>Unit 2:</b> 1.1, 1.3, 1.4, 1.5, 2.1, 2.3, 2.4, 2.5, 2.6 <b>Unit 3:</b> 1.1 <b>Unit 6:</b> 3.3, 3.5
4.D.1.2 Use tables, bar graphs, timelines, and Venn diagrams to display data sets. The data may include benchmark fractions or decimals ( $\frac{1}{4}$ , $\frac{1}{3}$ , $\frac{1}{2}$ , $\frac{2}{3}$ , $\frac{3}{4}$ , 0.25, 0.50, 0.75).	<b>Unit 2:</b> 1.1, 2.1, 2.3, 2.5, 2.6 <b>Unit 3:</b> 1.1 <b>Unit 6:</b> 3.3, 3.5
4.D.1.3 Solve one- and two-step problems using data in whole number, decimal, or fraction form in a frequency table and line plot.	<b>Unit 2:</b> 1.1, 2.1, 2.3, 2.5, 2.6 <b>Unit 3:</b> 1.1 <b>Unit 6:</b> 3.3, 3.5

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**Grade 5 Units**

**Unit 1** - Puzzles, Clusters, and Towers

**Unit 2** - Prisms and Solids

**Unit 3** - Rectangles, Clocks, and Tracks

**Unit 4** - How Many People and Teams?

**Unit 5** - Temperature, Height, and Growth

**Unit 6** - Between 0 and 1

**Unit 7** - Races, Arrays, and Grids

**Unit 8** - Properties of Polygons



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<p align="center"><b>Oklahoma Academic Standards for Mathematics Grade 5</b></p>	<p align="center"><b>Investigations 3 in Number, Data, and Space ©2017, Grade 5</b></p>
<p><b>Math Actions and Processes</b></p>	
<p><b>Develop a Deep and Flexible Conceptual Understanding</b> Demonstrate a deep and flexible conceptual understanding of mathematical concepts, operations, and relations while making mathematical and real-world connections. Students will develop an understanding of how and when to apply and use the mathematics they know to solve problems.</p>	<p><b>Unit 1:</b> 1.1, 1.3, 2.2, 2.4, 2.5, 3.2, 3.5 <b>Unit 7:</b> 1.1, 1.4, 1.7, 1.11, 2.1, 2.3, 3.2, 3.4, 3.5, 3.6, 3.8, 3.10</p>
<p><b>Develop Accurate and Appropriate Procedural Fluency</b> Learn efficient procedures and algorithms for computations and repeated processes based on a strong sense of numbers. Develop fluency in addition, subtraction, multiplication, and division of numbers and expressions. Students will generate a sophisticated understanding of the development and application of algorithms and procedures.</p>	<p><b>Unit 2:</b> 1.3, 1.6, 1.7, 2.2, 2.3 <b>Unit 3:</b> 1.1, 2.1, 2.2, 2.3, 2.4, 2.5 <b>Unit 4:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5 <b>Unit 6:</b> 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9 <b>Unit 7:</b> 2.2, 3.2, 3.3, 3.4, 3.5, 3.7, 3.8, 3.10, 3.11</p>
<p><b>Develop Strategies for Problem Solving</b> Analyze the parts of complex mathematical tasks and identify entry points to begin the search for a solution. Students will select from a variety of problem solving strategies and use corresponding multiple representations (verbal, physical, symbolic, pictorial, graphical, tabular) when appropriate. They will pursue solutions to various tasks from real-world situations and applications that are often interdisciplinary in nature. They will find methods to verify their answers in context and will always question the reasonableness of solutions.</p>	<p><b>Unit 1:</b> 1.1, 1.3, 2.2, 2.4, 2.5, 3.2, 3.5 <b>Unit 4:</b> 1.2, 2.1, 2.4, 2.5, 3.1, 3.3, 3.4 <b>Unit 7:</b> 1.1, 1.4, 1.7, 1.11, 2.1, 2.3, 3.2, 3.4, 3.5, 3.6, 3.8, 3.10</p>
<p><b>Develop Mathematical Reasoning</b> Explore and communicate a variety of reasoning strategies to think through problems. Students will apply their logic to critique the thinking and strategies of others to develop and evaluate mathematical arguments, including making arguments and counterarguments and making connections to other contexts.</p>	<p><b>Unit 4:</b> 1.2, 2.1, 2.4, 2.5, 3.1, 3.3, 3.4 <b>Unit 8:</b> 2.1, 2.2, 2.4, 2.5</p>

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<p><b>Develop a Productive Mathematical Disposition</b> Hold the belief that mathematics is sensible, useful and worthwhile. Students will develop the habit of looking for and making use of patterns and mathematical structures. They will persevere and become resilient, effective problem solvers.</p>	<p><b>Unit 1:</b> 1.1, 1.2, 2.2, 2.4, 3.1, 3.4, 3.5, 3.6 <b>Unit 6:</b> 1.1, 1.3, 1.7, 1.8, 2.1, 2.4, 2.5, 2.8</p>
<p><b>Develop the Ability to Make Conjectures, Model, and Generalize</b> Make predictions and conjectures and draw conclusions throughout the problem solving process based on patterns and the repeated structures in mathematics. Students will create, identify, and extend patterns as a strategy for solving and making sense of problems.</p>	<p><b>Unit 2:</b> 1.1, 1.4, 1.6, 1.7, 1.8, 2.2 <b>Unit 3:</b> 1.1, 1.3, 1.4, 1.6, 2.1, 2.5, 2.7, 3.2, 3.3, 3.6 <b>Unit 5:</b> 1.1, 1.2, 1.3, 1.4, 1.7, 2.1, 2.3, 2.5 <b>Unit 7:</b> 1.3, 1.6, 1.8, 1.9, 1.10, 2.2, 2.3, 2.4, 3.3, 3.4, 3.8</p>
<p><b>Develop the Ability to Communicate Mathematically</b> Students will discuss, write, read, interpret and translate ideas and concepts mathematically. As they progress, students' ability to communicate mathematically will include their increased use of mathematical language and terms and analysis of mathematical definitions.</p>	<p><b>Unit 3:</b> 1.1, 1.2, 1.5, 2.1, 2.2, 2.3, 2.6, 3.2, 3.3, 3.4 <b>Unit 8:</b> 1.1, 1.3, 1.5, 2.1, 2.3, 2.4, 2.5</p>
<b>Number &amp; Operations (N)</b>	
<b>5.N.1 Divide multi-digit numbers and solve real-world and mathematical problems using arithmetic.</b>	
<p>5.N.1.1 Estimate solutions to division problems in order to assess the reasonableness of results.</p>	<p><b>Unit 1:</b> 3.2 <b>Unit 4:</b> 2.3, 3.2, 3.3, 3.4, 3.5 <b>Unit 7:</b> 3.7, 3.8, 3.9, 3.10, 3.11</p>
<p>5.N.1.2 Divide multi-digit numbers, by one- and two-digit divisors, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms.</p>	<p><b>Unit 1:</b> 2.5, 2.6, 2.7, 3.1, 3.2, 3.5, 3.6, 3.7 <b>Unit 2:</b> 1.2, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4 <b>Unit 3:</b> 1.1, 1.2, 2.1, 2.2 <b>Unit 4:</b> 2.1, 2.2, 2.4, 2.5, 2.7, 3.1, 3.4, 3.5 <b>Unit 6:</b> 1.3, 1.4, 1.5, 1.6, 2.1, 2.3 <b>Unit 7:</b> 2.2, 2.3</p>
<p>5.N.1.3 Recognize that quotients can be represented in a variety of ways, including a whole number with a remainder, a fraction or mixed number, or a decimal and consider the context in which a problem is situated to select and interpret the most useful form of the quotient for the solution.</p>	<p><b>Unit 4:</b> 2.1, 2.2 <b>Unit 7:</b> 1.9, 1.10, 1.11, 2.4, 3.6</p>

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5.N.1.4 Solve real-world and mathematical problems requiring addition, subtraction, multiplication, and division of multi-digit whole numbers. Use various strategies, including the inverse relationships between operations, the use of technology, and the context of the problem to assess the reasonableness of results.	<b>Unit 1:</b> 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7 <b>Unit 4:</b> 1.4, 1.5, 2.1, 2.3, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5
<b>5.N.2 Read, write, represent, and compare fractions and decimals; recognize and write equivalent fractions; convert between fractions and decimals; use fractions and decimals in real-world and mathematical situations.</b>	
5.N.2.1 Represent decimal fractions (e.g., $\frac{1}{10}$ , $\frac{1}{100}$ ) using a variety of models (e.g., 10 by 10 grids, rational number wheel, base-ten blocks, meter stick) and make connections between fractions and decimals.	<b>Unit 3:</b> 1.1 <b>Unit 6:</b> 1.1, 1.2, 1.4, 2.2 <b>Unit 7:</b> 2.2, 2.3, 2.4, 3.1, 3.6 <b>Unit 8:</b> 2.2
5.N.2.2 Represent, read and write decimals using place value to describe decimal numbers including fractional numbers as small as thousandths and whole numbers as large as millions.	<b>Unit 6:</b> 1.1, 1.2, 1.4, 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.8, 2.9 <b>Unit 7:</b> 1.1, 1.2, 1.3, 1.4, 1.9, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 3.4
5.N.2.3 Compare and order fractions and decimals, including mixed numbers and fractions less than one, and locate on a number line.	<b>Unit 6:</b> 1.1, 1.3, 1.4, 1.5, 1.7, 1.8, 2.3, 2.5, 2.6, 2.7, 2.8, 2.9 <b>Unit 7:</b> 1.2, 1.3, 1.4
5.N.2.4 Recognize and generate equivalent decimals, fractions, mixed numbers, and fractions less than one in various contexts.	<b>Unit 3:</b> 1.1 <b>Unit 6:</b> 1.1, 1.2, 1.4, 2.2 <b>Unit 7:</b> 2.2, 2.3, 2.4, 3.1, 3.6 <b>Unit 8:</b> 2.2
<b>5.N.3 Add and subtract fractions with like and unlike denominators, mixed numbers and decimals to solve real world and mathematical problems.</b>	
5.N.3.1 Estimate sums and differences of fractions with like and unlike denominators, mixed numbers, and decimals to assess the reasonableness of the results.	<b>Unit 3:</b> 2.3, 2.7, 3.3, 3.4, 3.5, <b>Unit 6:</b> 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.5, 2.6, 2.7, 2.8, 2.9
5.N.3.2 Illustrate addition and subtraction of fractions with like and unlike denominators, mixed numbers, and decimals using a variety of representations (e.g., fraction strips, area models, number lines, fraction rods).	<b>Unit 3:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 <b>Unit 4:</b> 1.1 <b>Unit 8:</b> 2.3, 2.4, 2.5

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<b>Oklahoma Academic Standards for Mathematics Grade 5</b>	<b>Investigations 3 in Number, Data, and Space ©2017, Grade 5</b>
5.N.3.3 Add and subtract fractions with like and unlike denominators, mixed numbers, and decimals, using efficient and generalizable procedures, including but not limited to standard algorithms in order to solve real-world and mathematical problems including those involving money, measurement, geometry, and data.	<b>Unit 3:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 <b>Unit 4:</b> 1.1 <b>Unit 8:</b> 2.3, 2.4, 2.5
5.N.3.4 Find 0.1 more than a number and 0.1 less than a number. Find 0.01 more than a number and 0.01 less than a number. Find 0.001 more than a number and 0.001 less than a number.	<b>Unit 6:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.8
<b>Algebraic Reasoning &amp; Algebra (A)</b>	
<b>5.A.1 Describe and graph patterns of change created through numerical patterns.</b>	
5.A.1.1 Use tables and rules of up to two operations to describe patterns of change and make predictions and generalizations about real-world and mathematical problems.	<b>Unit 5:</b> 1.6, 1.7, 2.3, 2.4, 2.6, 2.7 <b>Unit 8:</b> 2.2, 2.3, 2.4, 2.5
5.A.1.2 Use a rule or table to represent ordered pairs of whole numbers and graph these ordered pairs on a coordinate plane, identifying the origin and axes in relation to the coordinates.	<b>Unit 5:</b> 1.6, 1.7, 2.3, 2.4, 2.6, 2.7 <b>Unit 8:</b> 2.2, 2.3, 2.4, 2.5
<b>5.A.2 Understand and interpret expressions, equations, and inequalities involving variables and whole numbers, and use them to represent and evaluate real-world and mathematical problems.</b>	
5.A.2.1 Generate equivalent numerical expressions and solve problems involving whole numbers by applying the commutative, associative, and distributive properties and order of operations (no exponents).	<b>Unit 1:</b> 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 3.4, 3.5, 3.6, 3.7 <b>Unit 3:</b> 2.3, 2.4, 2.5, 3.1, 3.2 <b>Unit 4:</b> 2.1 <b>Unit 8:</b> 2.1, 2.2, 2.3, 2.4, 2.5
5.A.2.2 Determine whether an equation or inequality involving a variable is true or false for a given value of the variable.	<b>Unit 1:</b> 1.2, 2.3, 2.4, 2.5, 2.7, 3.6, 3.7 <b>Unit 3:</b> 3.3, 3.4 <b>Unit 5:</b> 2.5
5.A.2.3 Evaluate expressions involving variables when values for the variables are given.	<b>Unit 1:</b> 1.2, 2.3, 2.4, 2.5, 2.7, 3.6, 3.7 <b>Unit 3:</b> 3.3, 3.4 <b>Unit 5:</b> 2.5

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<b>Geometry &amp; Measurement (GM)</b>	
<b>5.GM.1 Describe, classify, and draw representations of two- and three- dimensional figures.</b>	
5.GM.1.1 Describe, classify and construct triangles, including equilateral, right, scalene, and isosceles triangles. Recognize triangles in various contexts.	<b>Unit 8:</b> 1.1
5.GM.1.2 Describe and classify three-dimensional figures including cubes, rectangular prisms, and pyramids by the number of edges, faces or vertices as well as the shapes of faces.	<b>Unit 2:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.4
5.GM.1.3 Recognize and draw a net for a three-dimensional figure (e.g., cubes, rectangular prisms, pyramids).	<b>Unit 2:</b> 1.1, 1.2, 1.4, 1.5, 1.6, 1.8, 2.1, 2.4
<b>5.GM.2 Understand how the volume of rectangular prisms and surface area of shapes with polygonal faces are determined by the dimensions of the object and that shapes with varying dimensions can have equivalent values of surface area or volume.</b>	
5.GM.2.1 Recognize that the volume of rectangular prisms can be determined by the number of cubes ( $n$ ) and by the product of the dimensions of the prism ( $a \times b \times c = n$ ). Know that rectangular prisms of different dimensions ( $p$ , $q$ , and $r$ ) can have the same volume if $a \times b \times c = p \times q \times r = n$ .	<b>Unit 2:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.7, 1.8, 2.1, 2.4
5.GM.2.2 Recognize that the surface area of a three-dimensional figure with rectangular faces with whole numbered edges can be found by finding the area of each component of the net of that figure. Know that three-dimensional shapes of different dimensions can have the same surface area.	For related content, please see: <b>Unit 2:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.4
5.GM.2.3 Find the perimeter of polygons and create arguments for reasonable values for the perimeter of shapes that include curves.	<b>Unit 8:</b> 2.1, 2.2, 2.3, 2.4, 2.5
<b>5.GM.3 Understand angle and length as measurable attributes of real-world and mathematical objects. Use various tools to measure angles and lengths.</b>	
5.GM.3.1 Measure and compare angles according to size.	For related content, please see: <b>Unit 8:</b> 1.1, 1.2, 1.3, 1.4, 1.5

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<b>Oklahoma Academic Standards for Mathematics Grade 5</b>	<b>Investigations 3 in Number, Data, and Space ©2017, Grade 5</b>
5.GM.3.2 Choose an appropriate instrument and measure the length of an object to the nearest whole centimeter or 1/16-inch.	For related content, please see: <b>Unit 8:</b> 2.1, 2.2, 2.4, 2.5
5.GM.3.3 Recognize and use the relationship between inches, feet, and yards to measure and compare objects.	<b>Unit 7:</b> 3.8, 3.9, 3.10, 3.11 <b>Unit 8:</b> 1.1, 1.3, 2.1, 2.3
5.GM.3.4 Recognize and use the relationship between millimeters, centimeters, and meters to measure and compare objects.	<b>Unit 7:</b> 3.8, 3.9, 3.10, 3.11 <b>Unit 8:</b> 1.1, 1.3, 2.1, 2.3
<b>Data &amp; Probability (D)</b>	
<b>5.D.1 Display and analyze data to find the range and measures of central tendency (mean, median, and mode).</b>	
5.D.1.1 Find the measures of central tendency (mean, median, or mode) and range of a set of data. Understand that the mean is a “leveling out” or central balance point of the data.	For related content, please see: <b>Unit 3:</b> 3.4, 3.5, 3.6 <b>Unit 4:</b> 3.1, 3.2, 3.3, 3.4, 3.5 <b>Unit 5:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.4, 2.5, 2.6, 2.7
5.D.1.2 Create and analyze line and double-bar graphs with whole numbers, fractions, and decimals increments.	<b>Unit 3:</b> 3.4, 3.5, 3.6