

Mathematics

Grade 1

Grade(s):	Grade 1
Discipline/Course:	Mathematics
Course Title:	Grade 1 Mathematics
Prerequisite(s):	Grade K Mathematics
Course Description: <i>Program of Studies</i>	In Grade 1, students build a foundational understanding of how numbers work, moving from basic counting to solving addition and subtraction problems within 100. The curriculum focuses on "part-part-whole" thinking, helping students master efficient strategies like "doubles" and "making ten" using visual models. Students develop fluency of basic addition and subtraction facts with sums to twenty. Students explore the base-ten system by grouping tens and ones, which prepares them for more complex math in the future. Beyond numbers, the course introduces how to measure length, tell time to the hour and half-hour, and identify shapes by their unique features. By the end of the year, students gain confidence in partitioning shapes into halves and quarters and organizing information into simple, clear graphs.
Course Essential Questions:	• Why do we count? • How do we use mathematics to describe and compare our world? • What patterns and relationships do we find with numbers in our number system? • How can we represent numbers in different ways to solve problems? • How does understanding "ten" help us work with larger numbers? • How can we use patterns and relationships to solve addition and subtraction facts?
Course Enduring Understandings:	• There are patterns that occur in our number system. • Cardinality - the last number tells 'how many' when counting . • Ordinal numbers are numbers that are counted once and only once in conventional order. • Numbers can be composed and decomposed (eg. 12 is 10 and 2 more). • Conservation of number - the arrangement of objects does not affect how many there are. • Subitizing (perceptual) is the instant recognition of a number of objects. • Unitizing is recognizing that numbers count not only objects, but groups of objects, e.g. 1

	thing, and one group of (10) things. • Numbers can be combined and separated (eg. Adding 10 more to a group of 9 gives you 19). • Objects can be described and compared using measurable attributes. • Objects can be sorted and classified by attributes. • Shapes can be composed and decomposed. • Measurement is the process of comparing an attribute (length, time, capacity) to a standard unit to share information accurately. • Our number system is based on groups of ten; identifying these groups allows us to count, compare, and compute efficiently. • Fact fluency is built on strategies (like Doubles or Bridge to Ten). • Mathematics involves choosing the most effective tool or representation (visual, symbolic, or physical) to make sense of a quantity.
Duration:	1 year
Course Materials/Resources:	Bridges 2nd ed., Bridges Number Corner
FPS Course Academic Expectation(s):	☒ Exploring and Understanding (EU) ☐ Synthesizing and Evaluating (SE) ☐ Creating and Constructing (CC) ☒ Conveying Ideas (CI) ☐ Collaborating Strategically (CS) ☐ Using Communication Tools (UCT)
At a Glance	Unit 1: Numbers all Around Us (Bridges Unit 1 and August/September Number Corner) Unit 2: Developing Strategies for Addition and Subtraction (Bridges Unit 2 and October Number Corner) Unit 3: Adding, Subtracting, Counting and Comparing (Bridges Unit 3 and November/December Number Corner) Unit 4: The Number Line (Bridges Unit 4 and January Number corner)

	Unit 5: Geometry (Bridges Unit 5 and February Number Corner) Unit 6: Addition and Subtraction to 20 (Bridges Unit 6 and March Number Corner) Unit 7: One Hundred and Beyond (Bridges Unit 7 and April Number Corner) Unit 8: Time and Duration (Bridges Unit 8 Module 1 and May/June Number Corner)
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Unit 1: Numbers All Around Us	In Unit 1 the instruction focuses on establishing classroom routines and building a foundation for number sense. As an entry point to the study of mathematics in first grade, Unit 1 works to establish classroom standards around exploring and communicating about numbers. Its mathematical focus is the development of number sense and number combinations (with emphasis on combinations to 10). The unit introduces important mathematical models, including the number rack and five- and ten-frames, and students are expected to become proficient using strategies that emerge from these models.
Learning Goals	
Standard(s):	Operations and Algebraic Thinking Understand and apply properties of operations and the relationship between addition and subtraction. 1.OA.4. Understand subtraction as an unknown-addend problem. For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8. Add and subtract within 20. Add and subtract within 20. 1.OA.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2). 1.OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$). Number and Operations in Base Ten Extend the counting sequence. 1.NBT.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral. Understand place value. 1.NBT.2. Understand that the two digits of a two-digit number represent amounts of tens and ones.

	Understand the following as special cases: b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. Measurement and Data Measure lengths indirectly and by iterating length units. 1.MD.2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps. Represent and interpret data 1.MD.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. Geometry Reason with shapes and their attributes. 1.G.2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.
Essential Question(s):	• How do we work together as mathematicians? • How can I show a number in different ways? • How do groups of 5 and 10 help us understand numbers? • How can we use graphs and tallies to answer questions about our class? • What patterns do we notice when we count?

Enduring Understanding(s):	• Mathematics is a collaborative activity that involves sharing ideas, using tools, and following established routines. • Numbers can be represented in multiple ways, including objects, pictures, tally marks, and numerals, to help us solve problems. • Quantities can be organized into groups (specifically benchmarks of 5 and 10) to help us see "how many" without counting every item by ones. • Numbers can be broken apart (decomposed) and put together (composed) in various ways. • Tallies and graphs are tools mathematicians use to collect, organize, and describe information about their community. • When counting a set, the last number said is the number of objects in a set (Cardinality). • If there is a corresponding object matched to each object in a set, the totals of the sets are equivalent (one-to-one correspondence). • Numbers grow by one, and exactly one, each time (Hierarchical Inclusion). • The quantity stays the same regardless of the arrangement (Conservation of Number). • Identifying patterns in mathematics helps us to make generalizations about our number system. • Commutative Property for addition: The order of addends does not change the result ($5+2=7$, $2+5=7$). • Associative Property for addition: the grouping of addends can change and will not change the sum $(5+3)+2=5+(3+2)$. • Equivalence can be represented in many ways. • Using known understandings of equivalence can help to find solutions to unknown problems. • Numbers can be composed and decomposed to make computations easier. • Numbers can flexibly combine numbers using a variety of strategies. • Contextual problems can be represented using a variety of problem structures. • A variety of strategies can be used to solve addition and subtraction problems.
Learning Goal(s): <i>Students will be able to use their learning to:</i>	Content: (Students will know...) • Develop fluency of addition and subtraction within ten • Plan, conduct and investigate efficient strategies for counting a set of objects, and determining that the last number said is the number of objects in the set.

- Analyze investigate how whole numbers grow by one, and exactly one each time.
- Develop and use models to represent contextual word problems using a variety of problem structures.
- Ask questions and investigate the meaning of equivalence and how it can be represented in different ways.
- Construct explanations using patterns, structures and the relationship between addition and subtraction.
- Represent thinking using models and numbers, defend reasoning and question peers for deeper understanding and clarification.
- numbers and patterns: Establishing routines, counting to 100, counting by 1, 2, 5s, skip-counting.
- number sense to 10: number combinations for 5 and 10.
- composition and Decomposition of numbers to 10
- subitizing: seeing numbers as “5 and some more.” Subitize to 10, part-part-whole to 20.
- adding and subtracting to Ten: Subitize to 20, then add 1 and subtract 1 from the quantity.
- data analysis: collecting data and comparing “more,” “less,” and “equal” through tallying and graphing.

Skills: (Students will be able to...)

- recognize the number of objects in a collection of 6 or fewer, arranged in any configuration.
- solve subtraction problems by counting on.
- add within 20.
- solve for the unknown in an addition equation involving 3 whole numbers (2 addends and a sum).
- recognize, describe, and extend number patterns.
- read and write numerals to 120.
- count by 10s to 100.
- group and count objects by 10.

Unit 2: Developing Strategies for Addition and Subtraction	In Unit 2 the focus shifts from general number sense to specific strategies for addition and subtraction within 10, utilizing visual models to build fluency. This unit shifts students from relying on counting strategies to strategies that involve composing and decomposing numbers. Students develop foundational understanding of algebraic properties. They understand that numbers can be grouped in a variety of ways, or presented in a different order, and the quantity will stay the same. Students develop automaticity with basic facts by focusing on number relationships and the use of benchmark numbers to develop efficient strategies for computing. Students are encouraged to view the equal sign as a way to indicate that two expressions are of equal value, not as a symbol that precedes “the answer.” This relational view of equality is perhaps the most important algebraic concept to be learned in the early grades, making it possible for young children to solve for unknown values in an equation.
Learning Goals	
Standard(s):	Operations and Algebraic Thinking Represent and solve problems involving addition and subtraction. 1.OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. Understand and apply properties of operations and the relationship between addition and subtraction. 1.OA.3. Apply properties of operations as strategies to add and subtract. Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.) 1. OA.4. Understand subtraction as an unknown-addend problem. For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8. Add and subtract within 20. Add and subtract within 20.

	1.OA.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2). 1.OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$). Work with addition and subtraction equations. 1.OA.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$. 1.OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = _ - 3$, $6 + 6 = _$. Number and Operations in Base Ten Extend the counting sequence. 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 $<$. Use place value understanding and properties of operations to add and subtract. Measurement and Data Represent and interpret data 1.MD.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
Essential Question(s):	• How are addition and subtraction related? • What strategies can I use to find the total of two numbers?

	• How can we represent different number combinations? • How can we find the difference between two numbers? How do we use a number line to help us add and subtract?
Enduring Understanding(s):	• Addition and subtraction are inversely related. • Mathematical fluency involves using a variety of strategies (like counting on, doubles, and making ten) rather than just counting by ones. • Visual models such as the number rack (Rekenrek), dice, and dominoes allow us to "see" number combinations and patterns. • Comparing two quantities helps us determine not just which is "more" or "less," but exactly "how many more" or "how many fewer" (the difference). • Numbers can be represented on a number line to show their sequence and the distance between them.
Learning Goal(s): <i>Students will be able to use their learning to:</i>	Content: (Students will know...) • fact families and story problems with addition and subtraction relationships • addition and Subtraction: addition and subtraction within 10. • fact strategies: ○ counting on ○ doubles ○ counting back within 12 ○ commutative strategy ○ (note: Students who are still counting by 1s to add and subtract are encouraged to count on and count back instead) • counting strategies: ○ counting on ○ counting back ○ counting by 5s and 10s ○ anchor numbers of 5 and 10 ○ combining small groups of numbers within larger numbers

- building from known facts
- efficient, effective, and sensible strategies for adding and subtracting single-digit numbers.
- the quantity represented in a set without having to count each individual object in the set on common dot arrangements.

Skills: (Students will be able to...)

- recognize the number of objects in a collection of 6 or fewer, arranged in any configuration.
- solve subtraction story problems with minuends to 20 involving situations of taking from, taking apart, and comparing with unknowns in all positions.
- apply the commutative property of addition to add.
- solve subtraction problems by finding an unknown addend. (e.g. solve $10-8$ by finding the number that makes 10 when added to 8).
- solve addition problems by counting on.
- add fluently with sums to 10.
- use strategies to add with sums to 20.
- solve for the unknown in an addition or subtraction equation involving 3 whole numbers.
- use $>$, $=$, and $<$ symbols to record comparisons of two 2-digit numbers.
- Plan and conduct an investigation of how sums of numbers grouped in different ways or in a different order stay the same.
- Develop and use models to represent how addition and subtraction are inversely related.
- Ask questions and investigate how a collection of objects can be thought of as one group, e.g. ten object can be thought of as one group of ten.
- Construct explanations using patterns and structures of how parts are related to the whole and how they can be used to solve addition and subtraction problems.
- Use tools and clear and precise language to describe reasoning related to compensation and equivalence.

Unit 3: Adding, Subtracting, Counting, and Comparing	In Unit 3, the focus expands to include a deep dive into the structure of "teen" numbers and early place value concepts. The purpose of this unit is to encourage student mastery of key number facts and fact strategies for single-digit addition and subtraction. Students will use models such as math rack to see number combinations, find the sum of two numbers, and compare two numbers to find the difference between them. Place value concepts will be reinforced as a means to solve addition combinations to 20, and students will make use of unifix cubes to develop an understanding of subtraction as a difference. Students gain a deeper understanding of the meaning of equivalence as they investigate larger numbers within 100.
Learning Goals	
Standard(s):	Operations and Algebraic Thinking Represent and solve problems involving addition and subtraction. 1.OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. Understand and apply properties of operations and the relationship between addition and subtraction. 1.OA.3. Apply properties of operations as strategies to add and subtract. Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.) 1. OA.4. Understand subtraction as an unknown-addend problem. For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8. Add and subtract within 20. Add and subtract within 20. 1.OA.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2). 1.OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use

strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).

Work with addition and subtraction equations.

1.OA.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.

1.OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = _ - 3$, $6 + 6 = _$.

Number and operations in base ten

Extend the counting sequence.

1.NBT.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Understand place value.

1.NBT.2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

- a. 10 can be thought of as a bundle of ten ones — called a “ten.”
- b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
- c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

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 $<$. Use place value understanding and properties of operations to add and subtract.

	Use place value understanding and properties of operations to add and subtract. 1.NBT.4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. Measurement and Data Represent and interpret data 1.MD.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
Essential Question(s):	• Why does place determine value? • How can benchmark numbers, like five and ten, help us to add and subtract? • How can we think about what we know about numbers first to help us choose an efficient strategy to solve a problem? • What makes a "teen" number? • How can we show that one number is greater than or less than another? • How does grouping by tens help us count larger numbers? • What happens to a number when we add or subtract ten?
Enduring Understanding(s):	• Numbers between 11 and 19 (the "teen" numbers) are composed of one ten and some more ones. • The position of a digit determines its value (e.g., the '1' in 14 represents ten, not one). • We use specific symbols ($<$, $>$, $=$) to describe the relationship between two quantities or numbers. • Skip-counting by 2s, 5s, and 10s is a more efficient way to count large sets and reveals patterns in our number system. • Problems can be solved by moving forward (addition) or backward (subtraction) on a number

	line or number rack. - Numbers can be decomposed and the smaller amounts can be added in varying orders, yet still be equivalent (Associative and Commutative properties). - There are place value patterns that occur when adding on groups of ten. - A collection of objects can be thought of as one group (Unitizing). - Flexible methods of computing vary with the numbers in the situation or problem
Learning Goal(s): <i>Students will be able to use their learning to:</i>	Content: (Students will know...) - single-digit sums: fact families, doubles, relationships, even, odd. - fact strategies (doubles+1, making ten), - addition and Subtraction Facts: sum of two numbers, compare the sum, find the difference - tens and Teens: “10 and some more” to make 11 to 20. - exploring equations: writing addition expressions, comparing equations within the range of 0 to 120. Develop and solve subtraction equations where the subtrahend is missing. - coin values (penny, nickel) and counting money. Skills: (Students will be able to...) - solve addition and subtraction story problems with sums and minuends to 20 involving situations of adding to, putting together, taking from, taking apart, and comparing with unknowns in all positions. - solve subtraction problems by finding an unknown addend - add and subtract fluently with sums and minuends to 10 - solve for the unknown in an addition equation involving 3 whole numbers - represent the number of objects with a written numeral up to 120. - demonstrate an understanding that the digits in a 2-digit number represent amounts of tens and ones. - demonstrate the understanding that 10 can be thought of as a bundle or group of 10 ones, called a ten.

	● add a 1-digit number and a 2-digit number. ● Analyze and interpret how and why place determines value and how this understanding can be used to add and subtract numbers. ● Look for and make use of structures when composing and decomposing quantities to efficiently add, subtract, and find missing addends. ● Construct viable arguments and critique the reasoning of others when comparing numbers using symbols such as $<$, $>$ or $=$
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Unit 4 The Number Line	The focus of Unit 4 is to help students develop a solid footing in counting, addition, and subtraction within the range of 0–120, conceptually and procedurally. Unit 4 focuses on the number line as a model both to represent numbers and to add and subtract them using multiples of 1, 5, and 10. Throughout, closed and open number lines are used both as models of our number system, as well as models for beginning operations with addition and subtraction. Students locate numbers on a number line, use their reasoning skills and number sense to determine unknown values, and explore addition and subtraction. As the unit unfolds, the range of numbers represented grows from 0–20 to 0–120. Students become comfortable skip-jumping along open number lines in multiples of 5 and 10, forward and backward, from numbers that are both on and off the decade. Students measure, compare, and order measurements, write inequality statements, and find differences between the two numbers.
Learning Goals	
Standard(s):	Operations and Algebraic Thinking Represent and solve problems involving addition and subtraction. 1.OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Add and subtract within 20.

1.OA.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

1.OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).

1.OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = _ - 3$, $6 + 6 = _$:

Number and operations in base ten

Extend the counting sequence.

1.NBT.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Understand place value.

1.NBT.2. Understand that the two digits of a two-digit number represent amounts of tens and ones.

Understand the following as special cases:

- a. 10 can be thought of as a bundle of ten ones — called a “ten.”
- b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
- c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

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 $<$. Use place value understanding and properties of operations to add and subtract.

	Use place value understanding and properties of operations to add and subtract. 1.NBT.4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. 1.NBT.5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. 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), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
Essential Question(s):	• What is addition? • What is subtraction? • How do we measure the length of an object? • What makes a "half" or a "fourth"? • How can we use jumps of 5 and 10 to move quickly on a number line? • How can I compare the capacity of two different containers? • What pattern do you see in our number system when you count by a given number?
Enduring Understanding(s):	• Addition is a process of increasing or putting together. • Subtraction is thought of as taking away or finding the difference. • To measure accurately, units must be placed end-to-end without gaps or overlaps. • A whole can be partitioned into equal-sized parts, such as halves and fourths; the more parts a whole is divided into, the smaller each part becomes. • Numbers can be represented as distances from zero, and "jumps" on a number line represent adding or subtracting quantities.

	• Numbers up to 100 follow a predictable base-ten pattern. • Measuring length involves comparing the size of an object to a specific unit of measure • A digit can represent ones or tens or hundreds, depending on where it is placed. • Place value patterns occur when making and adding groups of ten. • Compensation and Equivalence: when you lose one but gain it, the total stays the same. (Ex. $9+1$ is equivalent to $8+2$ and both are equivalent to one group of 10). • A collection of objects can be thought of as one group (Unitizing). • Numbers can be decomposed in many ways, e.g. groupings of ones, tens, and hundreds can be thought of as, $23=2$ tens and 3 ones, or 1 ten and 13 ones, or 23 ones) • Commutative Property for addition: The order of addends does not change the result ($5+2+7$, $2+5=7$). • Associative Property for addition: the grouping of addends can change and will not change the sum $(5+3)+2=5+(3+2)$.
Learning Goal(s): <i>Students will be able to use their learning to:</i>	Content: (Students will know...) • the number line as a computational tool. Number line between 0 and 120. • multiples of 5 and 10. Jumps and hops of 1, 5, 10. • adding and subtracting in multiples of 5 and 10. • direct and indirect comparison of length, measuring with non-standard units. • counting, reading, writing numbers to 100, place value patterns. • models: ○ open number line • Strategies: ○ skip counting ○ skip jumps by 1, 5, or 10 ○ skip count by 10s or 50s Skills: (Students will be able to...) • represent addition and subtraction on a number line. • solve for the unknown in an addition or subtraction equation involving 3 whole numbers.

- recognize, describe, and extend number patterns.
- count to 120, starting with any number less than 120, including 0 or 1.
- read and write numerals to 120.
- count by 10s to 100.
- add a 1-digit number and a 2-digit number.
- add a multiple of 10 (up to 80) and another 2-digit number.
- use strategies based on place value, properties of operations, or the relationship between addition and subtraction to add with sums to 100.
- mentally find the number that is 10 more or 10 less than a given 2-digit number, without counting.
- use concrete models or drawings to subtract a 2-digit multiple of 10 from an equal or greater 2-digit multiple of 10.
- use strategies based on place value, properties of operations, or the relationship between addition and subtraction to subtract a 2-digit multiple of 10 from an equal or greater 2-digit multiple of 10.
- Analyze and interpret efficient counting patterns using groups of fives, tens and ones.
- Develop and use models to represent how quantities can be composed and decomposed.
- Represent numbers and number relationships on a number line and use tools like the number line to add, subtract and count within 120.

Unit 5: Geometry	Unit 5 shifts from numerical operations to the spatial world. This unit is heavily focused on the attributes of shapes and the foundational concepts of fractions through partitioning. The purpose of this unit is to develop relationships among geometric shapes. Students compose and decompose plane or solid figures and build understanding of part-whole relationships, as well as the properties of the original and composite shapes. They recognize and compare shapes from different perspectives and orientations. Students partition shapes into fractional parts. Over the course of this unit, students use a variety of tools and models to explore two- and three-dimensional shapes and fractions (halves, thirds, and fourths). Throughout, the emphasis is squarely on shapes—identifying, describing, constructing, drawing, comparing, composing, and sorting them. Students learn about fractions in the context of two-dimensional shapes as using cutting, folding, labeling and, completing pictures.
Learning Goals	
Standard(s):	Geometry Reason with shapes and their attributes. 1.G.1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes. 1.G.2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. 1.G.3. Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares. Represent and interpret data 1.MD.4. Organize, represent, and interpret data with up to three categories; ask and answer

	questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
Essential Question(s):	• What makes a shape a shape? • How are 2D shapes and 3D shapes different? • How can we tell if a shape has been divided into equal shares? • Where do we see geometry in our everyday world? • What makes shapes alike and different? • What shapes make up larger shapes? • How does breaking a larger shape into smaller shapes help you to think about the attributes of the shape? • What is a fraction? • How can different shapes be divided into two equal parts and four equal parts? • How can you tell when a fraction is larger/smaller when comparing fractions?
Enduring Understanding(s):	• Shapes are defined by their specific properties (number of sides, corners/vertices) rather than their size, color, or orientation. • Smaller shapes can be joined together to create new, larger shapes (composition), and large shapes can be broken down into smaller ones (decomposition). • 3D shapes (solids) have different properties than 2D shapes (figures), and we can identify them by their faces, edges, and vertices. • Shapes can be divided into identical parts that are mirror images of each other. • Fractional parts have special names that tell how many parts of that size are needed to make the whole (ex. fourths require four parts to make a whole). • Size of the whole matters when comparing fractional parts, e.g. $\frac{1}{2}$ pizza is different than $\frac{1}{2}$ cookie • Shapes can be composed and decomposed into other shapes. • The ability to perceive shapes from different viewpoints helps us understand relationships between 2-D and 3-D figures and mentally change the position and size of shapes. • Fractional parts must be of equal size. • The more the whole is divided into equal parts, the smaller the parts (ex. fourths are smaller than halves).

Learning Goal(s):

Students will be able to use their learning to:

Content: (Students will know...)

- attributes: Defining (sides, vertex/vertices, parallel sides) and non-defining (color, size).
- 2- D Shapes: Identifying and sorting shapes by attributes. Drawing shapes. Plane figures (triangle, square, rectangle, rhombus, trapezoid, hexagon, circle).
- 3-D Shapes: Sorting and building with solids; identifying faces/vertices. Solid figures (sphere, cube, cylinder, cone, pyramid, rectangular prism).
- combining: Combining shapes to fill an area. Building complex figures.
- decomposing: dividing, cutting, and folding shapes to illustrate fractions. Symmetry, congruent
- partition and Equal shares: half/halves, fourth/fourths.

Skills: (Students will be able to...)

- identify, name, describe, and compare 2-D shapes, including circles, triangles, rectangles, squares, rhombuses, hexagons, and trapezoids.
- identify, name, describe, and compare 3-D shapes, including cubes, rectangular prisms, triangular prisms, pyramids, cylinders, cones, and spheres.
- demonstrate an understanding of the difference between the defining and non-defining attributes of a 2-D shape.
- demonstrate an understanding of the difference between the defining and non-defining attributes of a 3-D shape.
- draw a 2-D shape with specific defining attributes.
- create a composite shape by composing 2-D shapes.
- create a composite shape by composing 3-D shapes.
- partition a circle [rectangle] into 2 or 4 equal parts.
- use the terms halves and half of to talk about the 2 equal parts into which a circle or rectangle has been partitioned.
- use the terms fourths, quarters, fourth of, and quarter of to talk about the 4 equal parts into which a circle or rectangle has been partitioned.
- demonstrate an understanding that as a shape is partitioned into a greater number of equal parts the size of the parts gets smaller

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| | <ul style="list-style-type: none">● investigations about the attributes used to describe different 2-D and 3-D shapes.● develop and use models to represent fractions as equal parts of a whole.● ask questions and investigate the relationship of fractions of a set of objects.● identify and describe attributes of different shapes and compare them. |
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Unit 6: Addition and Subtraction to 20	Unit 6 is tightly focused on addition and subtraction to 20. Students move from concrete counting to mental math strategies to add and subtract numbers. During this unit, first graders continue to develop fluency with addition and subtraction facts to 10 and strategies for working with facts to 20. Students will use strategies as flexible methods of computing that vary with the numbers and the situation. Students will flexibly, accurately, and efficiently add and subtract within twenty using a variety of strategies. In the process, they learn how to write and solve equations that involve unknowns in all positions. Although greater numbers are explored, automaticity with basic facts with addition and subtraction 0-10 is the goal by the end of grade.
Learning Goals	
Standard(s):	Operations and Algebraic Thinking Represent and solve problems involving addition and subtraction. 1.OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. 1.OA.2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. Understand and apply properties of operations and the relationship between addition and subtraction. 1. OA.4. Understand subtraction as an unknown-addend problem. For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8. Add and subtract within 20. Add and subtract within 20. 1.OA.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

	1.OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$). Work with addition and subtraction equations. 1.OA.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$. 1.OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = _ - 3$, $6 + 6 = _$. Number and operations in base ten Understand place value. 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 $<$. Use place value understanding and properties of operations to add and subtract. Measurement and Data Measure lengths indirectly and by iterating length units. 1.MD.1. Order three objects by length; compare the lengths of two objects indirectly by using a third object.
Essential Question(s):	• What strategies help me solve addition and subtraction facts quickly and accurately? • What does the equal sign really mean? • How can I find a missing number in an equation? • How do we compare two groups to find the difference?

Enduring Understanding(s):	• Mathematical fluency involves choosing the most efficient strategy (like "Bridge to Ten" or "Doubles Plus One") rather than just counting by ones. • the equal sign (=) represents a relationship of balance between two expressions, not just an instruction to "find the answer." • Mathematical situations can be represented using equations with unknowns in different positions (e.g., $8 + ? = 14$). • Subtraction can represent the "difference" or distance between two numbers, especially when comparing lengths or heights. • Collecting and graphing data allows us to answer questions and make comparisons about the real world. • Commutative Property for addition: The order of addends does not change the result ($5+2+7$, $2+5=7$). • Associative Property for addition: the grouping of addends can change and will not change the sum $(5+3)+2=5+(3+2)$
Learning Goal(s): <i>Students will be able to use their learning to:</i>	Content: (Students will know...) • addition and subtraction: addition and subtraction strategies for facts to 20; equations: understanding the equal sign and missing addends. • fact family equations and story problems. • solving for an unknown: result unknown, change unknown, start unknown. • measurement and data: measuring, collecting, graphing, and interpreting data. • strategies: ○ combinations of 10 ○ add ten ○ add nine ○ Doubles ○ taking away ○ Find the difference ○ fact families

- bridge to ten
- doubles +1, doubles -1
- comparison
- models:
 - the number rack
 - double-flap dot cards

Skills: (Students will be able to...)

- solve addition and subtraction story problems with sums and minuends to 20 involving situations of adding to, putting together, taking from, taking apart, and comparing with unknowns in all positions.
- solve subtraction problems by finding an unknown addend.
- add and subtract with sums and minuends to 20.
- add and subtract fluently with sums to 10.
- use the relationship between addition and subtraction to add and subtract within 20.
- demonstrate an understanding that the equal sign indicates equivalence.
- determine whether addition and subtraction equations are true.
- solve for the unknown in an addition or subtraction equation involving 3 whole numbers.
- Model with mathematics by drawing pictures and writing equations to match story problems.
- Reason abstractly and quantitatively to understand that addition and subtraction are inversely related.
- Look for and make use of structure when choosing an appropriate and efficient strategy for adding and subtracting within 20.

Unit 7 Place Value: One Hundred and Beyond	The purpose of this unit is to develop an understanding of place value and extend the counting sequence using real-world experiences. Students develop an understanding of whole number relationships using place value concepts. Data is gathered in order for students to study patterns in our place value system and deepen their understanding of place value concepts. During this unit, first graders continue to develop deep understandings of numbers to 120 as they estimate, count, compare, add, and subtract two-digit quantities using familiar models: sticks & bundles; dimes, nickels, and pennies; and the number line.
Learning Goals	
Standard(s):	Number and Operations in Base Ten Extend the counting sequence. 1.NBT.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral. Understand place value. 1.NBT.2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a “ten.” b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones). 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 $<$. Use place value understanding and properties of operations to add and subtract. Use place value understanding and properties of operations to add and subtract. 1.NBT.5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

	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), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
Essential Question(s):	• How do you determine the value of a number given its place in the number? • How can a number be decomposed in different ways? • What is the most efficient way to compose or decompose a number? • How do benchmark numbers help you determine the total number of objects? • What pattern do you see in our number system when you count by a given number?
Enduring Understanding(s):	• place value patterns occur when making and adding groups of ten. • ten individual objects can be grouped and thought of as a single entity called "a ten." • the value of a digit is determined by its position in a number (e.g., the 7 in 72 means seven tens, or 70). • any two-digit number can be seen as a sum of its tens and ones (e.g., $45 = 40 + 5$). • our number system follows a predictable 10×10 pattern that allows us to add or subtract 10 mentally. • multi-digit addition and subtraction can be solved by breaking numbers into tens and ones or using a number line.
Learning Goal(s): <i>Students will be able to use their learning to:</i>	Content: (Students will know...) • groups and bundles: counting by 10s; unitizing ones into tens. • data analysis: Using data to predict outcomes, comparing quantities. • adding and subtracting to 100: mental math (+10, -10) and two-digit addition, add and subtract 1-digit to and from 2-digit numbers. • numbers to 120: reading, writing, and sequencing numbers beyond 100. • place value: using pennies, nickels, dimes.

- measurement and data: introduction to the coordinate grid.

Skills: (Students will be able to...)

- count to 120, starting with any number less than 120, including 0 or 1.
- read and write numerals to 120.
- represent a number of objects with a written numeral up to 120.
- count by 5s to 100.
- add a 1-digit number and a 2-digit number.
- add a multiple of 10 (up to 80) and another 2-digit number.
- relate strategies for adding with sums to 100 to written methods; use written numbers and symbols to represent strategies for adding with sums to 100.
- add with sums to 100 using strategies that involve adding tens to tens and ones to one.
- add with sums to 100 using strategies that involve composing a ten (regrouping).
- mentally find the number that is 10 more or 10 less than a given 2-digit number, without counting.
- subtract a 2-digit multiple of 10 from an equal or greater 2-digit multiple of 10.
- analyze and interpret efficient counting patterns using groups of fives, tens and ones.
- develop and use models to represent how quantities can be composed and decomposed.
- represent numbers and number relationships on a number line and use tools like the number line to add, subtract and count within 120:

Unit 8: Time and Duration	The foundations of telling time were explored in number corners throughout the year. In this Unit, first graders make the link between time and change as they investigate some of the changes they can make to materials such as paper, craft sticks, and ice cubes in a second, a minute, and an hour. Students apply their understanding of measurement to time to the hour and half hour. Students will learn to use measurement tools including the digital and analog clock.
Standard(s):	Number and Operations in Base Ten Extend the counting sequence. 1.NBT.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral. Understand place value. 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 $<$. Use place value understanding and properties of operations to add and subtract. Use place value understanding and properties of operations to add and subtract. 1.NBT.4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. Operations and Algebraic Thinking Work with addition and subtraction equations. 1.OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = _ - 3$, $6 + 6 = _$.

	Tell and write time 1.MD.3 Tell and write time in hours and half-hours using analog and digital clocks. Measurement and Data Represent and interpret data 1.MD.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. Geometry Reason with shapes and their attributes. 1.G.3. Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.
Essential Question(s):	• How can duration be thought of in fractional parts and how does a clock divided into equal segments help us to tell time and duration? • How are units of time related to one another? • How do the two hands on a clock work together to tell time? • How can we tell time on both analog and digital clocks? • How do we measure how long an activity lasts? • What can you do in one second? One minute? One hour? • How do we record the start and end times of an event?
Enduring Understanding(s):	• Time is the duration (e.g. of an event) that can be measured from beginning to end. • Time can be measured in standard units (e.g. seconds, minutes, hours, days). • Time is a measurable attribute that can be tracked using specific tools (analog and digital clocks). • An analog clock is a circular number line; the position of the hands shows how much of an

	hour has passed. • Duration can be thought of in fractional parts (e.g. half past, quarter till, quarter after). "Half-past" an hour represents 30 minutes, or one-half of a complete rotation of the minute hand. • Hours and minutes follow a predictable, repeating cycle on an analog clock. The clock contains 60 minutes, then it resets to 0. • There is a difference between "what time it is" (a specific point) and "how long it takes" (duration). • Some activities take a "long time" (hours) while others take a "short time" (seconds or minutes)
Learning Goal(s): <i>Students will be able to use their learning to:</i>	Content: (Students will know...) • time increments. • time duration, passing of time. • comparison of 1 second, 1 minute, 1 hour. • the clock face, manipulatives, or mental calculation can be used to count by 5s. Skills: (Students will be able to...) • use appropriate tools to measure length, compare length, and read time to the hour and half hour. • tell time using understanding of mathematics to estimate and evaluate duration of time. • solve for the unknown in an addition equation involving 3 whole numbers (2 addends and a sum). • read and write numerals to 120. • count by 5s to 100. • compare pairs of 2-digit numbers. • use concrete models or drawings and strategies based on place value, properties of operations, or the relationship between addition and subtraction to add with sums to 100.

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| | <ul style="list-style-type: none">• tell and write time to the hour and half-hour on an analog clock.• partition a clock into 2 equal parts, and use terms to talk about the 2 equal parts. |
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