

LCCS 1st Grade Math Curriculum Overview

Month	Unit
September	Unit 1: Math Is..
September	Unit 2: Number Patterns
October	Unit 3: Place Value
October	Unit 4: Addition within 20: Facts and Strategies
November	Unit 5: Subtraction within 20: Facts and Strategies
December	Unit 6: Shapes and Solids
January	Unit 7: Meanings of Addition
January	Unit 8: Meanings of Subtraction
February	Unit 9: Addition within 100
March	Unit 10: Compare using Addition and Subtraction
April	Unit 11: Subtraction within 100
May	Unit 12: Measurement and Data
June	Unit 13: Equal Shares

Unit 1: Math Is..

At a Glance:

The focus of this unit is threefold:

1. To build students' agency as doers of mathematics. It is important that students understand that math is not just something done in school. Math is part of our daily lives and shows up in almost every activity. It is also important that students see themselves as skilled doers of math, so helping them understand that doing math is not carrying out operations or calculations. Rather, doing math is more accurately making sense of and solving problems and finding patterns and relationships among quantities and numbers. Lesson 1-1 help students see themselves as doers of math as they examine their attitudes toward math and their images of themselves as doers of math.
2. To re-introduce the habits of mind that are integral to doing mathematics. These include the thinking that makes up the problem-solving

process and that involves finding patterns and relationships among quantities and values. Lessons 1-2 through 1-5 focus on helping students begin building proficiency with these habits of mind.

3. To build understanding of the norms of interaction that allow for a productive math learning environment where students can develop, refine and enhance the habits of mind that are integral to doing math. Lesson 1-6 offers the opportunity for students to work together to develop the classroom norms for math for the school year.

Timeline:

10 Days

Unit 2: Number Patterns

At a Glance:

In this unit, students explore patterns in numbers to 120. Students will draw on their understanding of counting numbers to 100 and extend this understanding to 120. They will notice that numbers greater than 100 follow the same pattern as numbers less than 100. The ones increase by 1 from 0 to 9 then repeat from 0. The tens stay the same until ones restart at 0. Then the tens go up by 1 to 9. After 100, number patterns continue. Students will develop their understanding of number patterns to 120 by:

- Identifying pattern on a number chart and number line when counting to 120
- Read and write numbers to 120
- Count the number of objects in a group and represent the number with a written numeral

Timeline:

9 Days

Unit 3: Place Value

At a Glance:

This unit supports students' understanding of place value, number representations, and comparing numbers.

Understanding Place Value

Students are introduced to the idea of place value in this unit. This marks students' first time analyzing and representing numbers as tens and ones. Students learn how to make numbers 11 to 19 and that ten can be thought of as a group of ten 1s. Students also explore different ways to represent the same number using different but equivalent groupings of tens and ones.

Number Representations

Students explore different tools and methods to represent 2-digit numbers in this unit. First, connecting cubes are used to organize a large number of ones. Grouping ones makes counting more efficient. Next, groups of ten 1s are grouped together into tens. This helps students visualize the value of a 2-digit number. Finally, connecting cube representations and base-ten shorthand are connected to a place value chart.

Comparing Numbers

In Grade 1, students are formally introduced to comparing numbers using the symbols $<$, $>$, and $=$. Before using these symbols, different comparison tools are used. Students represent numbers using base-ten blocks and compare the number of tens and ones in each number. If the number of tens is different, the larger number of tens will always be the greater number. After that, numbers are found on a number line. The location of the number on the number line shows which number is greater. The number on the left is always less than the number on the right. Once students are comfortable with comparing two 2-digit numbers, the symbols are introduced as a way to represent the comparison.

Timeline:

14 Days

Unit 4: Addition within 20: Facts and Strategies

At a Glance:

Students develop concepts of addition within 20 through finding sums using various strategies. Students use number lines, counters, ten-frames, connecting cubes, and number bonds to model the addition process while learning these strategies. Students then apply these strategies to find unknowns in addition equations and to check whether a given equation is true or false. This foundational work is applied later to solve problems involving larger addends and to subtraction concepts.

Students will extend their understanding of place value and number sense concepts learned in previous grades. These include:

- **Additional fluency:** Students use various tools and strategies to find sums up to 20.
- **Unknown addends:** Students use addition strategies to determine an unknown addend in an addition equation.
- **The equal sign:** Students are introduced to the equal sign and what it means. They look at given equations and decide if those equations are true or false.

Timeline:

17 Days

Unit 5: Subtraction within 20: Facts and Strategies

At a Glance:

In this unit, students first relate counting to subtraction. Then they use the strategies count back, count on, make a 10, use addition, and fact families to subtract within 20. Students use these strategies to help prepare for when they subtract 2-digit number using place value and properties of operations.

Students use various tools and strategies to find differences within 20. Students use number lines and ten-frames to decompose and adjust addends. They also make fact triangles to relate addition and subtraction.

This work is foundational to understanding subtraction and is applied when students regroup to subtract greater numbers and to solve problems involving subtraction.

Students will extend their understanding of these subtraction concepts to find differences within 20. These include:

- **Counting back and count on:** Students use number lines to model an original number, and then find a difference by either jumping back a number of times to an ending number or counting the jumps back by a number being subtracted.
- **Fact families:** Students use fact triangles and related facts to find unknowns in a subtraction equation.
- **Equations:** Students decide whether given subtraction equations are true or false.
- **Make a 10:** Students use ten-frames and number bonds to decompose the number being subtracted to make a 10 first, then they find the difference between 10 and the remaining part of the number they decompose.

Timeline:

15 Days

Unit 6: Shapes and Solids

At a Glance:

In this unit, students extend their earlier work with recognizing, naming, and sorting 2-and 3-dimensional shapes to more formal work with defining 2-and3-dimensional shapes based on their attributes.

Students identify, describe, and define 2-dimensional shapes by their attributes. They also build and draw 2-dimensional shapes with various specified attributes.

Students work with defining attributes of a cube, rectangular prism, cone, cylinder, and sphere. To describe 3-dimensional shapes, they use the terms face, edge, and vertex.

Students extend their understanding of 2-3-dimensional shapes.

These include:

- **Defining and Non-Defining Attributes:** Defining attributes of a shape are characteristics that a shape will always have based on the definition of the shape. Characteristics of a shape that are not required by the definition of the shape are called non-defining attributes. For example, one triangle has three sides and three vertices. It is large and blue. Another triangle has three sides and three vertices. It is large and blue. Another triangle has three sides and three vertices. It is small and green. Therefore, “three sides” and “three vertices” are defining attributes of a triangle. Being blue or green or large or small applies to only some triangles, so those are non-defining attributes.
- **Composite Shapes and Solids:** Students have previously worked with composing and decomposing numbers. In this unit, they extend those ideas to composing and decomposing 2-and 3-dimensional shapes.

Timeline:

10 days

Unit 7: Meanings of Addition

At a Glance:

In this unit, students represent and solve addition word problems for two common addition situations: add to and put together. Students are familiar with these situations from Unit 4, where they focused on conceptual understanding. In Unit 7, the focus is on application. Students apply what they know about addition to solving different types of add to and put together word problems within 20.

Throughout the unit, students also make connections between words and numbers in the problem and an equation that matches the story in the problem. The same type of equation is used for each type of problem: two addends with a plus sign between them on one side of the equal sign and a total on the other side.

Students will extend their understanding of strategies to solve addition word problems. These include:

- **Representations Using Objects and Equations:** By acting out the problem with objects and manipulatives, students make critical connections between the objects and the numbers in the word problem as well as between what they do with the objects and how the words in the problem describe the problem-solving process.
- **Addition Strategies for Solving Word Problems:** For some types of addition problems, certain strategies fit better with the process than others. For example, for an add to problem when the change is unknown, counting on using a number line allows the students to visualize the change. For a put together problem when the sum is unknown, using the make a 10 strategy with a double ten-frame and counters allows students to visualize the sum.

Timeline:

10 Days

Unit 8: Meanings of Subtraction

At a Glance:

In this unit, students develop concepts of subtractions within 20 through the context of take from and take apart. Students use models and drawings to illustrate those situations. Subtraction equations are introduced as another way to represent subtraction problems.

Working with take from and take apart situations helps students develop meaning for the operation of subtraction. Whereas it is important for students to experience these situations, it is not necessary for them at this grade level to identify these situations by name.

Students use models with a part-part-whole mat to represent one part being taken away from another part in take from situations. When they work with take apart situations, they use a part-part-whole mat to visualize the situation by using addition or subtraction.

Students extend their understanding of strategies to solve subtraction word problems. These include:

- **Take From:** These problems involve the familiar take-away situation in which the problem begins with a whole and one part is taken away (the change number). The result is the part that is left.
- **Take Apart:** These situations generally involve a more static separation of objects in which there is a group of objects (the whole), with some of one type and some of another type (the parts). The problems requires students to find how many are of one type or are of the other-or how many there are in all.

Timeline:

12 Days

Unit 9: Addition within 100

At a Glance:

In earlier units, students developed strategies to add and subtract within 20 as they worked toward fluency with addition and subtraction facts. They used base-ten blocks for 2-digit numbers to develop place-value understanding. In this unit students build on those skills and concepts to add 2-digit numbers with and without regrouping. They also add multiples of 10. These skills enable students to solve a variety of problems, as well as prepare them for work next year with more difficult addition and subtraction.

Students are familiar with counting on strategies, such as counting on to make a ten. In this unit, students use representations to count on by tens and by ones. When students count on, they should be encouraged to use precise language.

Students will build on the knowledge they gained from previous units as they worked through these topics:

- **Add Multiples of 10:** Students use mental math to find ten more than a number.
- **Regrouping:** Early work in this unit involves problems that do not require regrouping. Students learn how to group 10 ones and trade those ones for 1 ten.
- **Equations:** Students build on their work with equations from the previous units to write equations to describe given addition stories. They should focus on knowing which numbers are the addends and what each number and symbol of equations represents.

Timeline:

14 Days

Unit 10: Compare Using Addition and Subtraction

At a Glance:

In previous units, students explored different subtraction strategies and situations. Students studied take from and put together/take apart situations. Their work on these types of problem situations provides a foundational understanding of subtraction.

Students used multiple solving strategies and tools to help solve these problems. They use models, part-part-whole mats, ten-frames, and number lines when solving take from and put together/take apart problems. Fact families were also introduced. These provide a concrete way for students to see the relationship between addition and subtraction. Finally, students learned to use equations as another way to describe subtraction problems.

Students will build on the knowledge they gained from previous units as they worked through these compare situations:

- **Difference Unknown:** These problems involve knowing how much of something two people (or entities) have. The result is the difference between these amounts.
- **Greater Unknown:** These problems involve knowing how many fewer of something one person has than another. The result is the amount the other person has, which is more.
- **Lesser Unknown:** These problems involve how many more of something one person has than another. The result is the amount the other person has, which is less.

Timeline:

8 Days

Unit 11: Subtraction within 100

At a Glance:

In earlier units, students developed strategies to subtract within 20 as they worked toward fluency with subtraction facts. They also used models and base ten blocks for two-digit numbers to develop place-value understanding. In this unit, students will use various strategies to subtract multiples of 10. These skills enable students to solve a variety of problems and they prepare students for work next year with more difficult subtraction.

Students are familiar with counting on strategies, such as counting on to first make ten. In this unit, students use models to count back by tens. When students count back, they should be encouraged to use precise language.

Students build on the knowledge they gained from previous units as they work through these topics:

- **Subtract Multiples of 10:** Students extend their work by finding ten less to subtract multiples of 10. They use base-ten blocks to emphasize that when you subtract a multiple of ten, you subtract tens from tens.
- **Subtraction Patterns:** Students should recall from their earlier work with finding ten less that the ones digit does not change when you subtract ten.
- **Equations:** Students build on their work with equations from the previous units to write equations to describe given subtraction stories. They should focus on knowing which number to start from, and what each number and symbol of the equation represents.

Timeline:

10 Days

Unit 12: Measurement and Data

At a Glance:

In this unit, students learn about measuring and comparing length, about telling time to the nearest hour and half-hour, and about collecting, organizing, representing, and displaying data. The use of data, both provided and collected, provides students with real-world contexts for solving comparison problems.

Measuring and Comparing Length: In this unit, students explore tools and units for measuring and comparing length, building on their work from Kindergarten where they determined which object was longer or shorter through direct comparisons (without using tools). Here, students directly and indirectly measure and compare lengths of objects, using nonstandard units of measurement.

Read, Write and Tell Time: IN this unit, students read, write, tell, and show time to the hour and half hour. In Grade 2, students extend these topics when they learn how to tell time to the quarter hour and to the nearest five minutes.

Organizing, Representing, and Interpreting Data: In this unit, students use surveys to collect data, recording it in tally charts. They interpret data by solving problems about it. The work students do in this unit lays the foundation for their future work with data analysis and statistics.

Timeline:

16 Days

Unit 13: Equal Shares

At a Glance:

In this unit, students learn to determine if a two-dimensional shape has been partitioned into equal shares. They also partition two-dimensional shapes to create equal shares (halves and quarters). Students will identify whether or not a partitioned shape shows equal shares and explain why or why not.

In Grade 2, students extend this work to include thirds, and they use words such as “three thirds” to describe all three shares of a whole partitioned into three equal parts. Formal fraction notation is introduced in Grade 3.

Students will learn about these topics:

- **Partitioning:** When a shape is divided into parts, each part is a share. When all shares of a two-dimensional shape are the same size, the shares are equal shares. Students determine if circles and rectangles are divided into equal shares. They also partitioned two dimensional shapes into halves and fourths. Students partitioned identical shapes in different ways to conclude that equal shares of any shape may not look the same as the equal shares of an identical shape.
- **Describing Equal Shares:** When describing equal shares, students should be encouraged to use language such as half, half of, fourth, quarter of, and so on. The use of such language promotes an understanding of the relationship between equal shares and the whole. Students conclude that the more equal-sized partitions in a shape, the smaller the parts.

Timeline:
10 Days