Grade 1 Math Unit 1

Content Area: **Mathematics**
Course(s):
Time Period: **Trimester 1**
Length: **59 Days**
Status: **Published**

Brief Summary of Unit

In this unit, students will recognize number partners for 10 and show them on models such as ten frames and number bonds. Students will also understand the meaning of actions described in addition and subtraction problems while showing and describing the actions in word problems using physical models, visual models, and symbols. Students will use objects, drawings, and equations to represent and solve addition and subtraction problems in 10. Additionally, students will be taught to understand the relationship between addition and subtraction. Students will generate groups related to addition and subtraction equations called fact families and make sense of stories being told in problems and use equations to represent problems. Next, students will understand that 10 ones can be thought of as a group of ten, called a ten and compose and decompose teen numbers into a ten and some ones. Students will find the total of three addends using strategies such as finding number partners for 10 and using doubles facts by grouping any two addends. Students will use the associative and commutative properties to group addends strategically in order to use addition strategies or known facts. Then, students will understand that breaking apart numbers and putting them together in new ways does not change the value. Finally, students will understand and apply the strategy of decomposing single-digit number to get 10 when subtracting it from a teen number.

Revision Date: August 2024

Essential Questions and Enduring Understandings

Essential Questions:

- How does numerical reasoning involve fluency and facility with numbers?
- How does taking apart and combining numbers using a variety of strategies help in computation?
- What are strategies for adding and subtracting?
- How does composing and decomposing a number in many ways help with computation?
- How can we represent problem situations?

Enduring Understandings:

- Students will understand the relationship between addition and subtraction and work fluently adding and subtracting within 10 by applying different strategies.
- Students will understand how to solve various types of addition and subtraction word problems using concrete and visual models and equations. The types of word problems will include add to, take from,

put together/take apart, and compare with change unknown and start unknown situations.

- Students will understand the concept of two digit numbers with teen numbers.
- Students will understand that numbers greater than 10 can be represented as groups of tens and ones

Students Will Know/Students Will be Skilled At

Students will know:

- How to recognize number partners for 10 and show them on models, such as 10 frames and number bonds
- How to connect equations to physical and visual representations of number partners for 10.
- How to show and describe the actions in word problems using physical models, visual models, and symbols.
- How to analyze word problems to determine how to solve them.
- How to use objects, drawings, and equations to represent and solve addition and subtraction problems within 10.
- How to use the count-on strategy to add and the count-back strategy to subtract.
- How to, when efficient, use a counting-on strategy to solve a subtraction word problem.
- How to identify, write and use related addition and subtraction equations to solve subtraction problems.
- How to generate groups of related addition and subtraction equations, called fact families.
- How to compose and decompose teen numbers into a ten and some ones with concrete objects and other visual representations, as well as with words and numbers.
- How to find the total of three addends using strategies, such as finding number patterns for 10 and using doubles facts by grouping any two addends.
- How to write addition equations with three addends to represent problems.
- How to use 10 as a benchmark that makes adding easier.
- How to use make a ten as a mental math strategy.
- How to apply the strategy of decomposing a single-digit number to get 10 when subtracting it from a teen number.
- How to use 10 as a benchmark number when subtracting from teen numbers in parts.

Students will be skilled at:

- Recognizing number partners for 10 and showing them on models.
- Connecting equations to physical and visual representations of number partners for 10.
- Showing and describing the actions in word problems using physical models, visual models, and symbols.
- Analyzing word problems to determine how to solve them.
- Using objects, drawings, and equations to represent and solve addition and subtraction problems within 10.
- Using the count-on strategy to add and the count-back strategy to subtract.
- Using a counting-on strategy to solve a subtraction word problem with efficiency.
- Identifying, writing and using related addition and subtraction equations to solve subtraction problems.
- Generating groups of related addition and subtraction equations, called fact families.
- Composing and decomposing teen numbers into a ten and some ones with concrete objects and other visual representations, as well as with words and numbers.
- Finding the total of three addends using strategies.
- Writing addition equations with three addends to represent problems.
- Using 10 as a benchmark that makes adding easier.
- Using make a ten as a mental math strategy.
- Applying the strategy of decomposing a single-digit number to get 10 when subtracting it from a teen number.
- Using 10 as a benchmark number when subtracting from teen numbers in parts.

Learning Plan

Daily Warm-ups (5-10 minutes):

*As an opening to each math lesson, the instructor can use these different routines

- Number Talks- District Created Number Talk Slides
- Quick Images- This routine helps students to subitize, or "instantly see how many". The teacher should briefly show an image of a quantity (using dot cards, ten frames, etc.). Students are then asked to identify the quantity they saw and to describe the image.
- Count Around the Room - Have students stand in a large circle around the room and count in a circle starting at different numbers within 110 (count by 10s forwards backwards, count by 1's forwards and backwards).
- Buzz - Have students stand in a large circle around the room. Students will count around the room however, one number will be the "Buzz Number". When a student says the "Buzz Number," that child is "out" and will sit down. Then, the counting sequence begins again. Keep playing until there is only one student left.
- Partner Counting- The first partner will tell their partner a number to start counting from. The partner will start counting. Using hand signals, the first partner can signal their partner to stop counting. Then, begin counting backward and then forward again. (Hand signals: Fist = Stop, Pointing up = Count Up, Pointing Down= Count Down) They can count for 30 seconds and then switch partner roles.

*First graders need to be fluent in adding and subtracting within 10. This is a skill that should be worked on throughout the year utilizing the Ready Math Program and supplemental resources that are located under materials.

1. Before teaching Lesson 1, instructor can review necessary prerequisite skills to prepare for the upcoming school year and familiarize students with routines
    a. Complete Lesson 0: Lessons for the First Five Days to familiarize students with the flow of the Try-Discuss-Connect instructional routine that will be used throughout the year.
    b. Review:
        i. Reading and comparing numbers 0-10
        ii. Decomposing numbers less than or equal to 10 into paris
        iii. Addition and subtraction fluently within 5.

2. **Number Partners for 10**: Instruct student to compare the ways number partners for 10 are shown in different models. Students should be taught to explain how to find the missing number partner for 10 when one number is known. Instruct students to describe how an equation represents a model of number partners for 10. Students should be taught to identify that the same addends in a different order still total 10 using equations.

    a. Complete Lesson 1 , Sessions 1-5 (5 days)
    b. Strategies to Teach:

i. Recognizing number partners for 10 and show them on models, such as ten frames and number bonds

ii. Finding the missing number partner for 10 when one number is known.

iii. Connecting equations to physical and visual representations of number partners for 10.

iv. Observing that order of addends does not change the total of 10.

c. Lesson Vocabulary to Review: number partner, equal sign, equation, plus sign (+), total, model (noun), represent.

3. **Add and Subtract Within 10**: The instructor will demonstrate understanding of actions in addition and subtraction using objects, visual models, and symbols. The instructor will explain orally how models and symbols represent word problems. Students will be taught how to describe and give reasons for the strategy or steps used to solve a word problem. Students will be taught how to justify their thinking by saying how an idea makes sense.

a. Complete Lesson 2 , Sessions 1-5 (5 days)

b. Strategies to Teach:

i. Understanding the meaning of actions described in addition and subtraction problems

ii. Showing and describing the action in word problems using physical models, visual models, and symbols.

iii. Connecting the meaning of models and symbols to contexts of word problems.

iv. Analyzing word problems to determine how to solve them.

c. Lesson Vocabulary: addition, equal, equal to, equal sign (=), equation, minus sign (-), plus sign (+), subtraction, model (verb), solve

4. **Use Counting Strategies to Add and Subtract:** Instruct students to describe how objects, drawings, and equations represent addition and subtraction problems within 10. Students should be taught to explain how to use the count on strategy to add and the count back strategy to subtract using a number path.

a. Complete Lesson 3 , Sessions 1-5 (5 days)

b. Strategies to Teach:

i. Using objects, drawings, and equations to represent and solve addition and subtraction problems within 10.

ii. Using the count on strategy to add.

iii. Using the count back strategy to subtract.

c. Lesson Vocabulary: count on, count back, add, minus sign (-), plus sign (+), subtract, result,

solution.

5. **Understand Missing Addends**: Instruct the children to explain orally how addition and subtraction equations are related. Students should be taught to describe how to use a counting-on strategy to solve a subtraction problem. Instruct students to state and write related addition and subtraction equations that can be used to solve problems.

a. Complete Lesson 4 , Sessions 1-5 (5 days)

b. Strategy to Teach:

   i. Understanding the relationship between addition and subtraction

   ii. When efficient, use a counting-on strategy to solve subtraction problems.

   iii. Identifying, writing, and using related addition and subtraction equations to solve subtraction problems.

c. Lesson Vocabulary: total. Result, part

6. **Solve Word Problems to 10**: The instructor will explain how to generate groups of related addition and subtraction equations using the term, fact families. Instruct students to write equations to represent word problems with the change unknown, using equation frames. Students should be taught to describe efficient strategies and tools to solve word problems within 10.

a. Complete Lesson 5 , Sessions 1-5 (5 days)

b. Strategies to Teach:

   i. Generating groups of related addition and subtraction equations, called fact families.

   ii. Making sense of stories being told in problems and use equations to represent problems

   iii. Working with change-unknown problems.

   iv. Choosing strategies and tools to efficiently solve word problems within 10.

c. Lesson Vocabulary to Review: fact family, total, identify, strategy

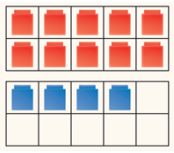
7. **Understand Teen Numbers**: The instructor will guide students to explore the structure of numbers between 10 and 20 (teen numbers). Students will develop the concept that teen numbers are composed of a group of ten and a group of ones. The instructor will explain and show ways to compose and decompose teen numbers as then and some ones using objects , pictures, words and numbers.

a. Complete Lesson 6, Sessions 1-5 (5 days)

b. Strategies to Teach:

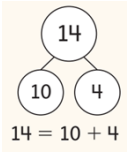
   i. The numbers 11-19 are teen numbers– a group of ten and some ones

ii. Model with 10-frames



i. Model with connecting cubes

i. Model with number bonds



i. Compose and decompose teen numbers into a ten and some ones with concrete objects, and other visual representations, as well as, with words and numbers.

a. Lesson Vocabulary: compose, decompose, ones, teen number, tens, organize

8. **Add Three Numbers**: The instructor will provide word problems that involve three addends. Instruct the students to use the associative property to group addends to add two numbers using a familiar strategy and then add the third number. The instructor will describe how to group addends in a helpful way to find the total.

a. Complete Lesson 7, Sessions 1-5 (5 days)

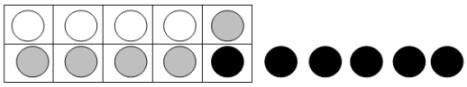
b. Possible strategies include but are not limited to:

i. Finding the total of three addends using strategies such as finding number partners for 10 and using doubles facts by grouping any two addends.

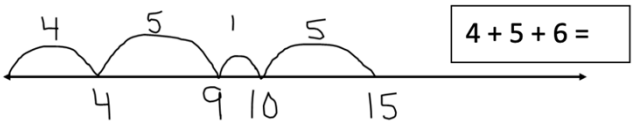
ii. Writing addition equations with three addends to represent problems.

iii. Explicit connections to the properties of addition (commutative and associative properties) should be made to provide students with opportunities to develop strategies for addition, including making 10 using open number lines and counting up.

iv. Students should have numerous experiences with concrete models and pictures before moving to writing equations. For example:



4 + 5 + 6 =



i. Use relatable/real-life problems. For example: Mrs. Smith has 4 oatmeal raisin cookies, 5 chocolate chip cookies, and 6 gingerbread cookies. How many cookies does Mrs. Smith have?

a. Lesson Vocabulary: addend, doubles, add, compose, equal, equation, number partner, total, order

9. **Make a Ten to Add**: The instructor will share the strategy of making ten to add within 20. Instruct the students to break apart an addend and associate one part of it with another addend to make 10 and then apply the understanding that teen numbers can be thought of as "10 + some number." The instructor will explain how to add two numbers by breaking them apart and putting them together using the strategy of making a ten. Instruct students to use a number bond to show, in writing, how numbers are broken apart to change one addend to 10.

a. Complete Lesson 8, Sessions 1-5 (5 days)

b. Possible strategies include but are not limited to:

i. Understanding that breaking apart numbers and putting them together in a new way doesn't change the value.

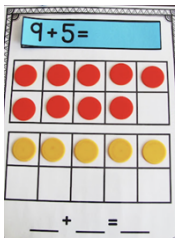
ii. Understanding that 10 is a useful benchmark that makes adding easier.

iii. Considering making a ten when using a strategy to add.

iv. Beginning to think of make a ten as a mental math strategy.

v. If students are struggling, start with '9' where they take 1 from the number they're adding to 9 to make a 10 and practice. For example: 9 + 5. Take the one from the 5 to make the 9 a ten and add 10 + 4 = 14

vi. To show the students what it means by taking '1' from a number, use twenty frames and different colored counters to demonstrate what exactly is happening when making a ten by taking '1' from a number.



a. Lesson Vocabulary: make a ten, addend, model (noun), model (verb)

10. **Make a Ten to Subtract**: The instructor will use several strategies and models to subtract single digit numbers from teen numbers. The instructor will have the students use number paths to relate counting up, counting back, and making a ten by subtracting in parts that allow them to make a ten and then subtract the rest. The instructor will relate these strategies to similar strategies they used for addition. The instructor should explain how to decompose a number using objects and number bonds in order to subtract it from a teen number. The instructor will describe how to use number partners for 10 to subtract a number in parts from a teen number.

a. Complete Lesson 9, Sessions 1-5 (5 days)

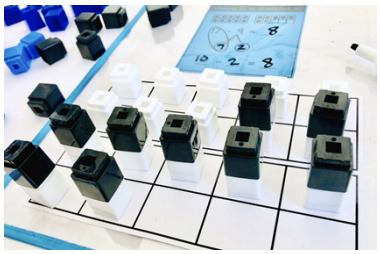
b. Possible strategies include but are not limited to:

i. Understanding and applying the strategy of decomposing a single-digit number to get 10 when subtracting from a teen number.

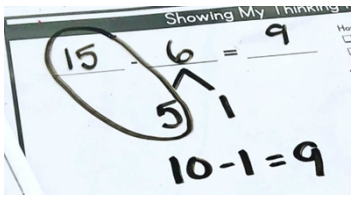
ii. Using 10 as a benchmark number when subtracting from teen numbers in parts.

iii. Using and articulating mental math strategies to subtract, based on familiar addition strategies.

iv. Students may start out drawing pictorial models for subtraction and crossing out the unwanted items. To move to making a ten you can provide hands-on opportunities to break apart numbers, redistribute their placement on ten frames, and create new equations. Students can repeatedly build, move, and create equations with counters and ten frames. Using concrete models allows students to distribute the manipulatives to create the ten.



i. Next you can move to number bond and number models which are more abstract.



If students struggle with the abstract, move back to the concrete using models. 10 is not as natural of a benchmark for subtraction as it is addition. Therefore, it may require more concrete experiences.

a. Lesson Vocabulary: fact family, make a ten, teen numbers, tens, model (noun), part

GENERAL QUESTIONS FOR TEACHER USE

Adapted from Growing Success and materials from Math GAINS and TIPS4RM (Georgia Department of Education)

Reasoning and Proving

• How can we show that this is true for all cases?

• In what cases might our conclusion not hold true?

• How can we verify this answer?

• Explain the reasoning behind your prediction.

• Why does this work?

• What do you think will happen if this pattern continues?

• Show how you know that this statement is true.

• Give an example of when this statement is false.

• Explain why you do not accept the argument as proof.

• How could we check that solution?

• What other situations need to be considered?

Reflecting

• Have you thought about...?

• What do you notice about...?

• What patterns do you see?

• Does this problem/answer make sense to you?

• How does this compare to...?

• What could you start with to help you explore the possibilities?

• How can you verify this answer?

• What evidence of your thinking can you share?

• Is this a reasonable answer, given that...?

Selecting Tools and Computational Strategies

• How did the learning tool you chose contribute to your understanding/solving of the

problem? Assist in your communication?

• In what ways would [name a tool] assist in your investigation/solving of this problem?

• What other tools did you consider using? Explain why you chose not to use them.

• Think of a different way to do the calculation that may be more efficient.

• What estimation strategy did you use?

Connections

• What other math have you studied that has some of the same principles, properties, or procedures as this?

• How do these different representations connect to one another?

• When could this mathematical concept or procedure be used in daily life?

• What connection do you see between a problem you did previously and today's problem?

Representing

• What would other representations of this problem demonstrate?

• Explain why you chose this representation.

• How could you represent this idea algebraically? graphically?

• Does this graphical representation of the data bias the viewer? Explain.

• What properties would you have to use to construct a dynamic representation of this situation?

• In what way would a scale model help you solve this problem?

Note: The instructor is encouraged to consult the supplemental resources located under materials to personalize and differentiate instruction for students, as well as address any learning gaps based on formative assessments.

Evidence/Performance Tasks

Formative Assessment:

- Fact Fluency Practice Assessments

- Administer Ready Math Quizzes at the end of each Lesson
- Administer Comprehension Check (digital)

Summative Assessments:

- Administer Ready Math Mid-Unit Assessments
- Administer Ready Math End of Unit Assessments

Benchmark Assessments:

- iReady Diagnostic
- Fact Fluency Assessment
- Acadience Assessment

Alternative Assessments:

- Informal Observation
- Small Group Observation
- Exit Tickets
- Math Journal
- Oral and Written Explanations of Reasoning

Materials

The following are approved resources that teachers can include to further unit related objectives:

Core Book List

- Ready Math Teacher Toolbox Resources
    - Whole Class Instruction
        - Teach: Instruction & Practice, Interactive Tutorials,
        - Assess: Lesson Quizzes & Unit Assessments
    - Small Group Differentiation
        - Prepare: Prerequisite Lessons
        - Reteach: Tools for Instruction

    - Reinforce: Math Center Activities
    - Extend: Enrichment Activities
- Ready Math Workbook
- Ready Math Slides
- Digital Math Tools
- iReady My Path
- iReady Math Learning Game
- Manipulatives: two-color counters, tens frames, connecting cubes
- Dry Erase Boards
- Blank Number Bonds
- CPS District Mathematics Google Drive Folder

Any additional resources that are not included in this list will be presented to and reviewed by the supervisor before being included in lesson plans. This ensures resources are reviewed and vetted for relevance and appropriateness prior to implementation.

Standards

Diversity and Inclusion: Students will focus on equity, inclusion, and tolerance when analyzing the comparison of various quantities regarding characteristics of people. Equality will also be highlighted which can be associated with both numerical representations and the connection between people. This can be associated with treating people fairly and equally.

MATH.K-12.1	Make sense of problems and persevere in solving them
MATH.1.OA.A.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.
MATH.K-12.2	Reason abstractly and quantitatively
MATH.1.OA.A.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.
MATH.K-12.3	Construct viable arguments and critique the reasoning of others
MATH.1.OA.B.3	Apply properties of operations as strategies to add and subtract.

MATH.K-12.4	Model with mathematics
MATH.K-12.5	Use appropriate tools strategically
MATH.1.OA.B.4	Understand subtraction as an unknown-addend problem.
MATH.K-12.6	Attend to precision
MATH.1.OA.C.5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
MATH.K-12.7	Look for and make use of structure
MATH.1.OA.C.6	Add and subtract within 20, demonstrating accuracy and efficiency 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).
MATH.1.OA.D.7	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.
MATH.K-12.8	Look for and express regularity in repeated reasoning
MATH.1.OA.D.8	Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.
MATH.1.NBT.A.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.
MATH.1.NBT.B.2	Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:
MATH.1.NBT.B.2.a	10 can be thought of as a bundle of ten ones — called a “ten.”
MATH.1.NBT.B.2.b	The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
MATH.1.NBT.B.2.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).
ELA.SL.PE.1.1	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.
ELA.SL.PE.1.1.A	Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).
ELA.SL.PE.1.1.B	Build on others’ talk in conversations by responding to the comments of others through multiple exchanges.
ELA.SL.PE.1.1.C	Ask questions to clear up any confusion about the topics and texts under discussion.
ELA.SL.AS.1.6	Produce complete sentences when appropriate to task and situation.
WRK.K-12.P.1	Act as a responsible and contributing community members and employee.
WRK.K-12.P.4	Demonstrate creativity and innovation.
WRK.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.

Suggested Strategies for Modification

Possible accommodations/modification for Grade 1

Note: Teachers can find more specific modifications for English learners, learners with special needs learners

reading below grade level, and advanced learners on the Ready Math website.