04 Place Value and More Strategies for Addition and Subtraction

Content Area: **Math**
Course(s):
Time Period: **Full Year**
Length: **5 weeks**
Status: **Published**

General Overview, Course Description or Course Philosophy

In this unit, students will focus on the following skills and concepts:

- Adding Doubles
- Combinations of 10
- Adding Three Numbers
- 10 More, 10 Less
- Naming Numbers with Base-10 Blocks
- Exchanging Base-10 Blocks
- Identifying Place Value Digits
- Pennies
- Dimes
- Transferring ones and tens to pennies and dimes
- Greater than, less than, equal to
- The equal sign
- Measurement
- Comparison number stories
- Two-Digit Addition
- Two-Digit Subtraction

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

Essential Questions:

- How does where the digits are located affect how one reads the number?
- How do counting patterns help one to count?
- Why is place value important?
- How does place value help one find the answers to addition and subtraction problems?
- How do we measure the length of an object?
- How do we compare the lengths of two objects?

Enduring Understandings:

- Lengths can be measured using nonstandard units.
- Fact fluency is the ability to find sums and differences without counting.
- Place value determines the relative size of each digit in a number.
- Numbers can be compared based on the value of the digit.

- Equal means "same as".

CONTENT AREA STANDARDS

1.NBT

A. Extend the counting sequence

B. Understand place value

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

1.M

A. Measure lengths indirectly and by iterating length units

B. Tell and write time

C. Work with money

MA.1.MD.A.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object.
MA.1.MD.A.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.
MA.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.
MA.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.
MA.1.OA.B.3	Apply properties of operations as strategies to add and subtract.
MA.1.OA.B.4	Understand subtraction as an unknown-addend problem.
MA.1.OA.C.5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
MA.1.OA.C.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).
MA.1.OA.D.7	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.

MA.1.OA.D.8	Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.
MA.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:
MA.1.NBT.B.3	Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.
MA.1.NBT.B.2a	10 can be thought of as a bundle of ten ones — called a “ten.”
MA.1.NBT.B.2b	The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
MA.1.NBT.B.2c	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).
MA.1.NBT.C.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 (e.g., base ten blocks) 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.
MA.1.NBT.C.5	Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.4	Model with mathematics.
MA.K-12.6	Attend to precision.

RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)

LA.SL.1.1	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.
LA.SL.1.2	Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
WRK.K-12.P.1	Act as a responsible and contributing community members and employee.
WRK.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
TECH.9.4.2.IML.1	Identify a simple search term to find information in a search engine or digital resource.

STUDENT LEARNING TARGETS

- I can compare the lengths of two objects indirectly by using a third object.
- I can compare two two-digit numbers based on meanings of the tens and ones digits.
- I can relate the strategy used to add within 100 to a written method and explain the reasoning used.
- I can add within 20 using strategies.
- I can subtract within 20 using strategies.
- I can add within 100 using concrete models or drawings and strategies.
- I can apply properties of operations as strategies to add and subtract.
- I can determine if equations involving addition and subtraction are true or false.
- I can determine the unknown whole number in an addition or subtraction equation relating three whole

numbers.
- I can express the length of an object as a whole number of length units, by laying multiple copies of a shorter object end to end.
- I can mentally find 10 more than a given two-digit number without counting and explain the reasoning used.
- I can mentally find 10 less than a given two-digit number without counting and explain the reasoning used.
- I can order three objects by length.
- I can record the results of comparisons with the symbols >, <, and =.
- I can relate counting to addition.
- I can relate counting to subtraction.
- I can solve word problems that call for the addition of three whole numbers whose sum is less than or equal to 20.
- I can use addition within 20 to solve word problems involving various situations with unknowns in all positions.
- I can use objects, drawings and equations with a symbol for the unknown number to represent addition and subtraction problems within 20.
- I can use subtraction within 20 to solve word problems involving various situations with unknowns in all positions.
- I can demonstrate fluency for addition within 10.
- I can demonstrate fluency for subtraction within 10.

Declarative Knowledge

Students will understand that:

- Addition within 20 can be classified as a set of “facts”.
- Combinations of 10 and doubles facts are used as “helper” facts.
- The grouping or order of three numbers can be changed without changing the sum of the numbers.
- Length is the distance along a path.
- Base-10 numeration uses ten digits to represent whole numbers and decimals.
- The system for base-10 is called a place-value system because the value of a digit depends on its place in the number.
- “One ten” can be thought of as a group of “10 ones”.
- Coins are assigned specific values.
- Numbers are compared based on the digits in the tens and ones places.
- Symbols such as <, >, = are used to write number models comparing numbers.

Procedural Knowledge

Students will be able to:

- Directly compare the lengths of two objects.
- Measure length with nonstandard units.
- Identify the best measurement for an object.
- Ask and answer questions about data represented by a bar graph.
- Demonstrate automaticity with sums of 10.
- Recognize combinations of 10 such as 9 + 1, 5 + 5, 10 + 0.
- Solve number stories with three addends.
- Find 10 more or 10 less than a given number using a number grid.
- Identify digits in 2-digit numbers.
- Make place-value exchanges.
- Compare 2-digit numbers using relation symbols.
- Identify number sentences as true or false.
- Solve comparison number stories.
- Add a 2-digit number and a 1-digit number using strategies.
- Determine the sum of a 1-digit number and a 2-digit number.

EVIDENCE OF LEARNING

Benchmark Assessments

Benchmark Assessments conducted three times per year, using

-Pear Assessment (Standards Based Assessments)

-iXL

Alternate Assessments

- Portfolios
- Verbal Assessment (instead of written)
- Multiple choice
- Modified Rubrics
- Performance Based Assessments

Formative Assessments

- Journal Pages
- Home Links/Worksheets
- Self-Assessments/Student Friendly Scales
- White board responses
- Entrance/Exit Tickets
- Participation
- Teacher Observation
- IXL

Summative Assessments

- Weekly Quizzes
- End of Unit Assessments
- End of Unit Self Assessments
- End of Unit Challenges (optional - if time allows)
- End of Unit 4 Cumulative Assessment
- End of Unit 5 Open Response Assessement (optional - if time allows)

INTERDISCIPLINARY CONNECTIONS

- Technology/Multimedia: Educational Tech Applications
- Career Readiness: Utilize critical thinking to make sense of problems and persevere in solving them.

RESOURCES (Instructional, Supplemental, Intervention Materials)

Calendar Math

EDM Lessons:

- Lesson 4-7
- Lesson 4-8/Lesson 4-9
- Lesson 4-10 (Spend 2 Days)

- Lesson 4-11 (Spend 2 Days)

Start in January...

- Lesson 5-1
- Lesson 5-2
- Lesson 5-3
- Lesson 5-4
- Lesson 5-5 (Spend 3 Days)
- Lesson 5-7
- Lesson 5-6/Lesson 5-8 (Add Number Scrolls as a 4th Exploration)
- Lesson 5-9
- Lesson 5-10 (2 Days)
- Lesson 5-11 (2 Days)
- Lesson 5-12

Games:

- Domino Top It (Lessons 4-2, 4-7, 4-9): Finding and comparing sums
- Ten-Frame Top-It (Lesson 4-7): Comparing numbers represented on ten frames
- Roll and Record Doubles (Lesson 4-7): Finding addition doubles
- High Roller (Lesson 4-8): Adding numbers
- Fishing for 10 (Lessons 4-9, 4-10): Making combinations of 10
- What's Your Way? (Lesson 4-11): Finding 10 more or 10 less than a number
- The Digit Game (Lessons 5-1, 5-2, 5-3, 5-8): Comparing 2-digit numbers based on place value
- Penny-Dime Exchange (Lessons 5-3, 5-8): Exchanging ones for tens
- Top-It with Relation Symbols (Lesson 5-4): Comparing numbers with relation symbols
- Addition Top-It (Lessons 5-5, 5-11): Solving addition facts and using relation symbols
- Before and After (Lessons 5-6): Finding numbers that are 1 less or 1 more than a given number
- Base-10 Exchange (Lesson 5-9): Exchanging ones for tens
- The Difference Game (Lesson 5-10): Finding differences
- Stop and Go (Lesson 5-11): Adding and subtracting 2-digit numbers

Brain Pop, Jr.:

- Doubles
- Comparing Numbers

Songs: Doubles Rap http://www.viewpure.com/8jOzhiACB68?start=0&end=0

IXL

Read Alouds/Literature Links:

- Penny Book
- Dime Book
- Gavin the Gator (*by Kathleen L. Stone)*

- Alfie the Alligator *(by Sandy Turley)*
- The Warlord's Beads *(by Virginia Walton Pilegard)*
- Just Enough Carrots *(by Frank Remkiewicz)*

Manipulatives Tool Kits (https://www.hand2mind.com/item/individual-student-manipulative-kits-grades-k-2-set-of-4)

Materials: See Unit 4 Materials List on page 298 of Teacher's Lesson Guide 1 for needs beyond manipulatives

See Unit 5 Material List on page 384 of Teacher's Lesson Guide 1 for needs beyond manipulatives

Additional Resource charts and tools:

- number line
- number grid
- tally charts
- ten frames
- blank bar graphs

See Shared Drive First Grade/Math for additional resources to support units:
https://drive.google.com/drive/u/1/folders/0B1b4mf8z6FE-UmhUSUxzemRVZ2M?resourcekey=0-DWNrdgPPiT7uDqFqM_7Ogw

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

See link to Accommodations & Modifications document in course folder.

- modify activity
- simplify directions
- check-ins
- visuals
- manipulatives
- graphic organizers
- sentence starters
- wait time
- additional time for tasks

- verbal responses
- illustrations