

07 Two-digit addition and subtraction

Content Area: **Math**
Course(s):
Time Period: **Full Year**
Length: **3 weeks**
Status: **Published**

General Overview, Course Description or Course Philosophy

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

- Measurement
- Two-Digit Addition Number Stories
- Two-Digit Subtraction Number Stories
- Comparing Number Stories
- Place Value
- 3-Dimensional Shapes
- Equal Shares

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

Essential Questions:

- How do you measure an object?
- What strategies can be used to solve addition and subtraction number stories?
- Why does the value of a digit matter when comparing numbers?
- How can shapes be used to construct new shapes?

Enduring Understandings:

- Objects are measured using the same using of measurement with no gaps or overlays.
- Numbers can be compared based on the value of its digit.
- Shapes can be named by its share or whole.

CONTENT AREA STANDARDS

1.OA

A. Represent and solve problems involving addition and subtraction

B. Understand and apply properties of operations and the relationship between addition and subtraction

C. Add and subtract within 20

D. Work with addition and subtraction equations

1.NBT

A. Extend the counting sequence

B. Understand place value

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

MA.K-12.1	Make sense of problems and persevere in solving them.
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.K-12.5	Use appropriate tools strategically.
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.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.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.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.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.1.NBT.C.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.
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.G.A.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.
MA.1.G.A.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.
MA.1.G.A.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.

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

LA.SL.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).
LA.SL.1.1.B	Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
LA.SL.1.1.C	Ask questions to clear up any confusion about the topics and texts under discussion.
LA.SL.1.5	Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.
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.
WRK.K-12.P.9	Work productively in teams while using cultural/global competence.
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 two two-digit numbers based on meanings of the tens and ones digits.
- I can distinguish between defining attributes and non-defining attributes of shapes.
- I can relate the strategy used to add within 100 to a written method and explain the reasoning used.
- I can relate the strategy used to subtract multiples of 10 from multiples of 10 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 build and draw shapes to possess defining attributes.
- I can compose new shapes from composite shapes.

- I can compose three-dimensional shapes to create a composite shape.
- I can compose two-dimensional shapes to create a composite shape.
- I can determine if equations involving addition and subtraction are true or false.
- 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 or 10 less than a given two-digit number without counting and explain the reasoning used.
- I can record the results of comparisons with the symbols $>$, $<$, and $=$.
- 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 subtract multiples of 10 (in the range of 10-90) from multiples of 10 using concrete models or drawing and strategies.
- I can understand that 10 can be thought of as a bundle of ten ones.
- I can understand that in adding two-digit numbers, one adds tens and tens, ones and ones, and sometimes it is necessary to compose a ten.
- I can understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.
- I can understand that the two digits of a two-digit number represent amounts of tens and ones.
- I can understand the meaning of the equal sign.
- I can understand 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).
- I can understand the numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight or nine ones.
- 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:

- The length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.
- Strategies can be used to solve addition and subtraction number stories.
- Digits can be compared based upon the value of its position.
- Shapes can be partitioned into equal parts.
- Shapes can be named by its share or whole.

Procedural Knowledge

Students will be able to:

- Measure the lengths of objects.
- Model and solve two and three addend number stories
- Add two-digit numbers
- Subtract two-digit numbers
- Solve comparison stories
- Apply the position of digits to solve number-grid puzzles
- Construct new shapes
- Partition shapes into equal parts
- Name parts of a shape

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 Assessment
- End of Unit Self Assessment
- End of Unit Challenge (optional - if time allows)
- End of Unit Open Response Assessment (optional - if time allows)

RESOURCES (Instructional, Supplemental, Intervention Materials)

Calendar Math

EDM Lessons:

- Lesson 9-1
- Lesson 9-2 (2 Days)
- Lesson 9-3 (2 Days)
- Lesson 9-4 (if time permits)
- Lesson 9-5 (2 Days)
- Lesson 9-6
- Lesson 9-7
- Lesson 9-8
- Lesson 9-9
- Lesson 9-10
- Lesson 9-11
- Lesson 9-12

Games:

- Beat the Calculator (Lessons 9-1, 9-11): Using mental addition
- Animal Weight Top-It (Lessons 9-2, 9-7): Adding 2-digit numbers

- Tric-Trac (Lessons 9-4, 9-7): Adding within 10
- Stop and Go (Lessons 9-5, 9-6): Adding and subtracting 2-digit numbers
- Top-It with School Store Cards (Lesson 9-8): Comparing numbers using addition
- The Digit Game (Lesson 9-9): Comparing 2-digit numbers based on place value
- Time Match (Lesson 9-10): Telling Time
- Make My Design (Lesson 9-10): Creating Composite Shapes
- I Spy (Lesson 9-10): Describing and Identifying shapes

IXL

Brain Pop, Jr.

Read Alouds/Literature Links:

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

Materials: See Unit 9 Materials List on page 764 of Teacher's Lesson Guide 2 for needs beyond manipulatives

Additional Resource charts and tools:

- number line
- number grid
- tally charts
- ten frames
- blank bar graphs
- classroom analog clock

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

INTERDISCIPLINARY CONNECTIONS

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

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