

02 Strategies for Addition

Content Area: **Math**
Course(s):
Time Period: **Full Year**
Length: **7 weeks**
Status: **Published**

General Overview, Course Description or Course Philosophy

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

- Decomposing Numbers within 10
- Counting On
- Labeling
- Change-to-More Number Stories
- Change-to-Less Number Stories
- Number Models
- Solving for Unknowns
- Parts-and-Totals Number Stories
- Counting Forwards and Backwards on the Number Line
- Skip Counting
- Frames and Arrows

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

Enduring Understandings:

- There are many strategies to apply when solving addition number models and stories.
- Decomposing numbers, specifically the number 10, is a key strategy for solving using addition.
- Knowing how addition and subtraction are related helps us to solve math problems.
- Addition and subtraction are related as inverse operations.

Essential Questions:

- How is counting related to addition and subtraction?
- What are some strategies that can be used for addition?
- What are some strategies that can be used for subtraction?
- What is the relationship between addition and subtraction?
- How can the properties of operations help to solve addition and subtraction problems?

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.K-12.2	Reason abstractly and quantitatively.
MA.1.OA.B.3	Apply properties of operations as strategies to add and subtract.
MA.K-12.4	Model with mathematics. 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.)
MA.1.OA.C.5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
MA.K-12.7	Look for and make use of structure.
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.8	Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.
MA.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.

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.1.1.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.1.5	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.
TECH.9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
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 add within 20 using strategies.
- I can subtract within 20 using strategies.
- I can apply properties of operations as strategies to add and subtract.
- I can determine the unknown whole number in an addition or subtraction equation relating three whole numbers.
- I can relate counting to addition.
- I can relate counting to subtraction.
- I can represent a number of objects with a written numeral between 0-120.
- 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 count to 120, starting at any number less than 120.
- I can demonstrate fluency for addition and subtraction within 10.
- I can read and write numerals to 120.

Declarative Knowledge

Students will understand that:

- A math fact shows the relationship between two or more numbers.
- There are multiple strategies (counting on, combinations of 10, and the turn-around rule) for solving, discussing and writing Math facts.
- The “counting-on strategy” allows counting to begin at any number.
- The turn-around rule allows for knowing $a + b = c$ if $b + a = c$ is known.
- Addition and subtraction are related as inverse operations.
- Counting up can be seen as repeated addition; counting back can be seen as repeated subtraction.
- Change diagrams can be translated to number models.

Procedural Knowledge

Students will be able to:

- Add within 20 using strategies.
- Subtract within 20 using strategies.
- Apply properties of operations as strategies to add and subtract.
- Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.
- Relate counting to addition.
- Relate counting to subtraction.
- Represent a number of objects with a written numeral between 0-120.
- Apply addition within 20 to solve word problems involving various situations with unknowns in all positions.
- Use objects, drawings and equations with a symbol for the unknown number to represent addition and subtraction problems within 20.
- Apply subtraction within 20 to solve word problems involving various situations with unknowns in all positions.
- Count to 120, starting at any number less than 120.
- Demonstrate fluency for addition within 10.
- Demonstrate fluency for subtraction within 10.
- Read numerals to 120.
- Write numerals to 120.

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
- 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)
- Cumulative Assessment after Unit 2

RESOURCES (Instructional, Supplemental, Intervention Materials)

Calendar Math

EDM Lessons:

- Lesson 2-1
- Lesson 2-2/2-3 Combined (Spend 2 days, but merge activities)
- Lesson 2-4
- Lesson 2-5
- Lesson 2-6
- Lesson 2-7

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

Games:

- Roll and Total (Lessons 2-1, 2-3, 2-6): Counting on to find sums
- Monster Squeeze (Lessons 2-1, 2-8): Comparing numbers
- Ten-Frame Top-It (Lessons 2-2, 2-3, 2-10): Comparing numbers represented on ten frames
- Penny Plate (Lessons 2-3, 2-4, 2-6, 2-9): Finding pairs of numbers that add to 10
- Subtraction Bingo (Lessons 2-4, 2-9): Finding differences
- Rock, Paper, Scissors (Lesson 2-4): Recording data with tally marks
- High Roller (Lesson 2-6): Adding numbers
- Top-It (Lesson 2-6): Comparing numbers
- Bunny Hop (Lesson 2-7): Counting
- Rolling for 50 (Lesson 2-8, 2-11): Using the number grid
- Domino Top-It (Lesson 3-1): Finding and comparing numbers
- Roll and Total (Lesson 3-2, 3-5): Counting on to find sums
- High Roller (Lesson 3-3): Adding numbers
- Penny-Dice (Lesson 3-3): Counting
- Subtraction Bingo (Lesson 3-6): Finding differences
- Bunny Hop (Lesson 3-6): Counting
- Rolling for 50 (Lesson 3-6, 3-11): Using the number grid
- Penny Plate (Lesson 3-7): Finding pairs of numbers that add to 10

Brain Pop, Jr.:

- Making Ten
- Counting On

IXL

Read Alouds/Literature Links:

- Two Ways to Count to Ten (*retold by Ruby*)

Dee) <http://www.viewpure.com/FchJYZR2j8g?start=0&end=0>

- How Many Snails?: A Counting Book (by Paul Giganti, Jr.)
- 12 Ways to Get to 11 (by Paul Giganti, Jr.)

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

Materials: See Unit 2 Materials List on page 126 of Teacher's Lesson Guide 1 for needs beyond manipulatives

See Unit 3 Materials List on page 212 of Teacher's Lesson Guide 1 for needs beyond manipulatives

Additional Resource charts and tools:

- on-the-floor number line
- number line
- number grid
- tally charts
- ten frames

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