



ESL
SCIENCE
BUSINESS
BILINGUAL
PRESCHOOL
MATHEMATICS
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SOCIAL STUDIES
WORLD LANGUAGES
GIFTED & TALENTED
TECHNOLOGY EDUCATION
ENGLISH LANGUAGE ARTS
FINE & PERFORMING ARTS
FAMILY & CONSUMER SCIENCE
HEALTH & PHYSICAL EDUCATION

RAHWAY PUBLIC SCHOOLS

CURRICULUM & INSTRUCTION

Course: Mathematics

Grade Level: 1

This curriculum is part of the Educational Program of Studies of the Rahway Public Schools.

ACKNOWLEDGMENTS

**Anjanette Highsmith, Program Supervisor of K-6 Math, Science, and K-12 Instructional
Technology**

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Dr. Tiffany A. Beer, Director of Curriculum and Instruction

Subject/Course Title:
**Mathematics
Grade 1**

Date of Board Adoption:
August 27, 2024

RAHWAY PUBLIC SCHOOLS CURRICULUM

Mathematics: Grade 1

PACING GUIDE

Unit	Title	Pacing
1	<u>Adding, Subtracting, and Working with Data</u>	4 weeks
2	<u>Addition and Subtraction Story Problems</u>	5 weeks
3	<u>Adding and Subtracting within 20</u>	6 weeks
4	<u>Numbers to 99</u>	5 weeks
5	<u>Adding within 100</u>	4 weeks
6	<u>Length Measurements within 120 Units</u>	4 weeks
7	<u>Geometry and Time</u>	4 weeks
8	<u>Putting It All Together</u>	3 weeks

ACCOMMODATIONS

<p>504 Accommodations:</p> <ul style="list-style-type: none"> ● Provide scaffolded vocabulary and vocabulary lists. ● Provide extra visual and verbal cues and prompts. ● Provide adapted/alternate/excerpted versions of the text and/or modified supplementary materials. ● Provide links to audio files and utilize video clips. ● Provide graphic organizers and/or checklists. ● Provide modified rubrics. ● Provide a copy of teaching notes, especially any key terms, in advance. ● Allow additional time to complete assignments and/or assessments. ● Provide shorter writing assignments. ● Provide sentence starters. ● Utilize small group instruction. ● Utilize Think-Pair-Share structure. ● Check for understanding frequently. ● Have student restate information. ● Support auditory presentations with visuals. ● Weekly home-school communication tools (notebook, daily log, phone calls or email messages). ● Provide study sheets and teacher outlines prior to assessments. ● Quiet corner or room to calm down and relax when anxious. ● Reduction of distractions. ● Permit answers to be dictated. ● Hands-on activities. ● Use of manipulatives. ● Assign preferential seating. ● No penalty for spelling errors or sloppy handwriting. ● Follow a routine/schedule. ● Provide student with rest breaks. ● Use verbal and visual cues regarding directions and staying on task. ● Assist in maintaining agenda book. 	<p>IEP Accommodations:</p> <ul style="list-style-type: none"> ● Provide scaffolded vocabulary and vocabulary lists. ● Differentiate reading levels of texts (e.g., Newsela). ● Provide adapted/alternate/excerpted versions of the text and/or modified supplementary materials. ● Provide extra visual and verbal cues and prompts. ● Provide links to audio files and utilize video clips. ● Provide graphic organizers and/or checklists. ● Provide modified rubrics. ● Provide a copy of teaching notes, especially any key terms, in advance. ● Provide students with additional information to supplement notes. ● Modify questioning techniques and provide a reduced number of questions or items on tests. ● Allow additional time to complete assignments and/or assessments. ● Provide shorter writing assignments. ● Provide sentence starters. ● Utilize small group instruction. ● Utilize Think-Pair-Share structure. ● Check for understanding frequently. ● Have student restate information. ● Support auditory presentations with visuals. ● Provide study sheets and teacher outlines prior to assessments. ● Use of manipulatives. ● Have students work with partners or in groups for reading, presentations, assignments, and analyses. ● Assign appropriate roles in collaborative work. ● Assign preferential seating. ● Follow a routine/schedule.
<p>Gifted and Talented Accommodations:</p> <ul style="list-style-type: none"> ● Differentiate reading levels of texts (e.g., Newsela). ● Offer students additional texts with higher lexile levels. ● Provide more challenging and/or more supplemental readings and/or activities to deepen understanding. ● Allow for independent reading, research, and projects. ● Accelerate or compact the curriculum. ● Offer higher-level thinking questions for deeper analysis. ● Offer more rigorous materials/tasks/prompts. ● Increase number and complexity of sources. ● Assign group research and presentations to teach the class. ● Assign/allow for leadership roles during collaborative work and in other learning activities. 	<p>ELL Accommodations:</p> <ul style="list-style-type: none"> ● Provide extended time. ● Assign preferential seating. ● Assign peer buddy who the student can work with. ● Check for understanding frequently. ● Provide language feedback often (such as grammar errors, tenses, subject-verb agreements, etc...). ● Have student repeat directions. ● Make vocabulary words available during classwork and exams. ● Use study guides/checklists to organize information. ● Repeat directions. ● Increase one-on-one conferencing. ● Allow student to listen to an audio version of the text. ● Give directions in small, distinct steps. ● Allow copying from paper/book. ● Give student a copy of the class notes.

- Provide written and oral instructions.
- Differentiate reading levels of texts (e.g., Newsela).
- Shorten assignments.
- Read directions aloud to student.
- Give oral clues or prompts.
- Record or type assignments.
- Adapt worksheets/packets.
- Create alternate assignments.
- Have student enter written assignments in criterion, where they can use the planning maps to help get them started and receive feedback after it is submitted.
- Allow student to resubmit assignments.
- Use small group instruction.
- Simplify language.
- Provide scaffolded vocabulary and vocabulary lists.
- Demonstrate concepts possibly through the use of visuals.
- Use manipulatives.
- Emphasize critical information by highlighting it for the student.
- Use graphic organizers.
- Pre-teach or pre-view vocabulary.
- Provide student with a list of prompts or sentence starters that they can use when completing a written assignment.
- Provide audio versions of the textbooks.
- Highlight textbooks/study guides.
- Use supplementary materials.
- Give assistance in note taking
- Use adapted/modified textbooks.
- Allow use of computer/word processor.
- Allow student to answer orally, give extended time (time-and-a-half).
- Allow tests to be given in a separate location (with the ESL teacher).
- Allow additional time to complete assignments and/or assessments.
- Read question to student to clarify.
- Provide a definition or synonym for words on a test that do not impact the validity of the exam.
- Modify the format of assessments.
- Shorten test length or require only selected test items.
- Create alternative assessments.
- On an exam other than a spelling test, don't take points off for spelling errors.

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Adding, Subtracting, and Working with Data

Target Course/Grade Level: 1

Unit Summary: In this unit, students deepen their understanding of addition and subtraction within 10, and extend what they know about organizing objects into categories and representing the quantities. The activities in this unit reinforce these understandings and initiate the year-long work of developing accuracy and efficiency with sums and differences within 10. Some problems involve finding sums greater than 10, a skill to be honed throughout the course and with the support of tools such as connecting cubes. Students use drawings, symbols, tally marks, and numbers to represent categorical data. They go further by choosing their own categories, interpreting representations with up to three categories, and asking and answering questions about the data. This opening unit also offers teachers opportunities to introduce mathematical routines and structures for centers, and to develop a shared understanding of what it means to do math and to be a part of a mathematical community.

Approximate Length of Unit: 4 Weeks

LEARNING TARGETS

NJ Student Learning Standards:

1.OA.B.4: Understand subtraction as an unknown-addend problem. For example, subtract $10-8$ by finding the number that makes 10 when added to 8.

1.OA.C.5: Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

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., $13-4=13-3-1=10+4=14$); 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 $6+6+1=12+1=13$).

1.DL.A.1: Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Interdisciplinary Connections and Standards:

English Language Arts:

RI.CR.1.1: Ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how). : Students can read math word problems or math-related texts and answer questions about the key details presented in the problems or texts. This helps develop their reading comprehension skills while applying their understanding of mathematical concepts.

W.IW.1.2: With prompts and support, write informative/explanatory texts to examine a topic and convey ideas and information. : Students can write explanations or descriptions of math concepts and problem-solving strategies. This encourages them to articulate their understanding of math and communicate their thoughts clearly in writing.

SL.PI.1.4: Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly. Students can orally explain their mathematical thinking, discuss problem-solving strategies, and describe the steps taken to solve a math problem. This develops their oral communication skills while reinforcing mathematical concepts.

SL.AS.1.6: Produce complete sentences when appropriate to task and situation. : Students can develop their math vocabulary by learning and using math-specific terms related to the targeted standards. They can practice using these words in conversations, writing exercises, and math discussions.

Career Readiness, Life Literacies, and Key Skills:

9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).

9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Science & Engineering Practices:

Asking questions and defining problems

Developing and Using Models

Constructing Explanations and Designing Solutions

Using Mathematics and Computational Thinking

Obtaining, evaluating, and communicating information

Social Studies Standards:

6.1.2.CivicsCM.1: Describe why it is important that individuals assume personal and civic responsibilities in a democratic society.

6.1.2.CivicsCM.2: Use examples from a variety of sources to describe how certain characteristics can help individuals collaborate and solve problems (e.g., open-mindedness, compassion, civility, persistence).

6.1.2.CivicsCM.3: Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps.

Unit Understandings:

- Students add and subtract within 10, and represent and interpret categorical data.

Unit Essential Questions:

- How do pictures and objects help us solve addition problems?
- Why can you add addends in any order?
- Why is counting on helpful when solving an addition sentence?
- What does the equation sign mean?
- How do you solve a subtraction sentence using objects and drawings?
- Why is counting back helpful when solving a subtraction sentence?

- How do operations relate to each other?
- How do I find differences by using related addition facts?
- How can I organize and represent pictures to help understand data?
- How can I ask and answer questions about data?

Knowledge and Skills:

Students will know...

- How to represent and solve problems involving addition and subtraction.
- understand, and apply properties of operations and the relationship between addition and subtraction.
- How to work with addition and subtraction equations.
- How to represent and interpret data.

Students will be able to...

- Build toward accuracy and efficiency by adding and subtracting within 10 in a way that makes sense to them.
- Organize and represent data.
- Interpret data representations to ask and answer questions.

EVIDENCE OF LEARNING

Assessment:

What evidence will be collected and deemed acceptable to show that students truly “understand”?

- Warm-ups
- Cool-downs
- Section Checkpoints
- Illustrative Math End-of-Unit Common Assessment
- Daily Exit Slips
- Standards Mastery Assessment (iReady)

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) 1.1 Lessons 1-15

Standard 1.OA.B.4:

- **Activity 1:** Making 10 Strategy: Give students subtraction problems where they need to find the missing addend to make 10. For example, for the problem $10 - 8$, students find the number that, when added to 8, equals 10. Use manipulatives or drawings to illustrate the concept, and encourage students to explain their reasoning.
- **Activity 2:** Missing Part Puzzles: Prepare sets of cards with numbers that make 10 (e.g., 3 and 7, 6 and 4). Shuffle the cards and distribute them to students. Students pair up and take turns revealing

their cards. For each pair of numbers, students determine the missing addend to make 10 and explain their reasoning to their partner.

Standard 1.OA.C.5:

- **Activity 1:** Counting On: Practice counting on as a strategy for addition. For example, to solve $7 + 2$, students start with 7 and count on 2 more. Extend this to subtraction by counting back from a given number.
- **Activity 2:** Number Line Jump: Create a large number line on the floor or wall with numbers 1 through 20. Call out addition or subtraction problems (e.g., "Start at 9 and jump forward 3 places"). Students physically jump along the number line to demonstrate the counting strategy. Encourage students to explain their jumps and strategies to the class.

Standard 1.OA.C.6:

- **Activity 1:** Strategy Stations: Set up stations around the classroom with different addition and subtraction activities that target specific strategies. Stations may include counting on, making ten, decomposing numbers, using relationships between addition and subtraction, and creating equivalent sums. Students rotate through the stations, practicing and reinforcing various strategies.
- **Activity 2:** Speed Math Challenge: Display a series of addition and subtraction problems on the board. Set a timer and challenge students to solve as many problems as they can within a given time limit. Encourage students to use efficient strategies such as counting on, making ten, or using known facts. After the time is up, review the problems together and discuss different approaches used by students.

Standard 1.DL.A.1:

- **Activity 1:** Class Data Collection: Have students collect data on a topic of interest to them, such as favorite colors or types of pets. They organize the data into categories and represent it using graphs or charts. Students then ask and answer questions about the data, such as the total number of data points, how many are in each category, and how many more or less are in one category than another.
- **Activity 2:** Data Detective: Provide students with a set of data collected from surveys or observations. Students work individually or in pairs to analyze the data and answer questions about it. Encourage students to identify patterns, make comparisons between categories, and draw conclusions based on the data. Afterward, students share their findings with the class and discuss any interesting insights they discovered.

RESOURCES

Teacher Resources:

- Universal Screeners for Number Sense: USNS Screener
- IM Centers Navigation Tool: Centers Navigation Tool
- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 1
- IM Student Work
- IM Blackline Masters
- Online District Approved Approved Digital Resources

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Addition and Subtraction Story Problems

Target Course/Grade Level: 1

Unit Summary: In this unit, students learn to solve new types of addition and subtraction story problems and relate the quantities in the stories to equations. Students encounter most of the problem types introduced in Grade 1: Add to/Take From, Change Unknown, Put Together/Take Apart, Unknowns in All Positions, and Compare, Difference Unknown. The numbers are kept within 10 so students can focus on interpreting each problem and the relationship between counting and addition and subtraction. This also allows students to continue developing accuracy and efficiency with addition and subtraction within 10. As they solve problems, students analyze and write equations and consider the meaning of the equal sign. They may initially see it as a prompt for the answer to a question, which makes it difficult to interpret equations such as $7=5+2$, $7=5+2$. Developing an understanding of the equal sign is particularly important in solving missing-addend problems. In the next unit, students will solve addition and subtraction problems within 20 and work with equations with a symbol for the unknown in all positions, and further develop their accuracy and efficiency within 10.

Approximate Length of Unit: 5 Weeks

LEARNING TARGETS

NJ Student Learning Standards:

- 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.
- 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.
- 1.OA.B.3:** Apply properties of operations as strategies to add and subtract. 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.) (Clarification: Students need not use formal terms for these properties.)
- 1.OA.B.4:** Understand subtraction as an unknown-addend problem. For example, subtract by finding the number that makes 10 when added to 8.
- 1.OA.C.5:** Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- 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., $13-4=13-3-1=10-1$); 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 $6+6+1=12+1=13$).

1.OA.D.7: Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6=6$, $7=8-1$, $5+2=2+5$, $4+1=5+2$.

1.OA.D.8: Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8+?=11$, $5=?-3$, $6+6=?$.

1.DL.A.1 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

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.

Interdisciplinary Connections and Standards:

English Language Arts:

RI.CR.1.1: Ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how). : Students can read math word problems or math-related texts and answer questions about the key details presented in the problems or texts. This helps develop their reading comprehension skills while applying their understanding of mathematical concepts.

W.IW.1.2: With prompts and support, write informative/explanatory texts to examine a topic and convey ideas and information. : Students can write explanations or descriptions of math concepts and problem-solving strategies. This encourages them to articulate their understanding of math and communicate their thoughts clearly in writing.

SL.PI.1.4: Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly. Students can orally explain their mathematical thinking, discuss problem-solving strategies, and describe the steps taken to solve a math problem. This develops their oral communication skills while reinforcing mathematical concepts.

SL.AS.1.6: Produce complete sentences when appropriate to task and situation. : Students can develop their math vocabulary by learning and using math-specific terms related to the targeted standards. They can practice using these words in conversations, writing exercises, and math discussions.

Career Readiness, Life Literacies, and Key Skills:

9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).

9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Science & Engineering Practices:

Asking questions and defining problems

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Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps.

Unit Understandings:

- Students solve new types of story problems within 10 using the relationship between addition and subtraction. They develop an understanding of the meaning of the equal sign and connect story problems to equations.

Unit Essential Questions:

- What does the equation sign mean?
- How do you solve a missing addend problem?
- Why can you add addends in any order?
- How do operations relate to each other?
- How do I find differences by using related addition facts?
- What patterns exist in number names that can be used to understand and represent larger numbers?
- How can words and symbols be used to illustrate the comparison of numbers?

Knowledge and Skills:

Students will know...

- How to represent and solve problems involving addition and subtraction.
- How to understand and apply properties of operations and the relationship between addition and subtraction.
- How to add and subtract within 20.
- How to work with addition and subtraction equations.

Students will be able to...

- Solve Add To and Take From, Result Unknown and Add To, Change Unknown story problems.
- Understand the meaning of the equal sign.
- Solve Put Together/Take Apart problems with the unknown in different positions.
- Write equations to represent problems.
- Relate addition and subtraction.
- Solve, Compare, Difference Unknown problems.
- Apply understanding of the meaning of the equal sign to make sense of equations with a symbol for the unknown.
- Solve different types of story problems, limited to those learned in this unit.

EVIDENCE OF LEARNING

Assessment:

What evidence will be collected and deemed acceptable to show that students truly “understand”?

- Warm-ups
- Cool-downs
- Section Checkpoints
- Illustrative Math End-of-Unit Assessment
- Daily Exit Slips
- Standards Mastery Assessment (iReady)

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) 1.2 Lessons 1-23

Standard 1.OA.A.1:

- **Activity 1:** Word Problem Bingo: Create Bingo cards with different addition and subtraction word problems. Call out scenarios or equations, and students mark the corresponding answers on their Bingo cards. The first student to complete a row or column shouts "Bingo!" and explains how they solved each problem.
- **Activity 2:** Word Problem Gallery Walk: Post various word problems around the classroom. Students walk around, read the problems, and solve them using objects, drawings, or equations. After a set time, students discuss their solutions and strategies in small groups, rotating through the different problems.

Standard 1.OA.A.2:

- **Activity 1:** Number Bond Trios: Provide students with number bond templates and sets of three number cards (0-20). Students select three number cards and create number bonds to represent the parts and whole. They solve the resulting addition equation and check if the sum is less than or equal to 20.
- **Activity 2:** Story Problem Sculptures: Students work in pairs to create sculptures using playdough or modeling clay. Each sculpture represents a word problem involving the addition of three whole numbers. After creating their sculptures, students write and share the corresponding word problems with their classmates.

Standard 1.OA.B.3:

- **Activity 1:** Property Sort: Provide students with sets of addition and subtraction equations. Students sort the equations based on the properties demonstrated (e.g., commutative, associative). They discuss their reasoning for each sorting decision.
- **Activity 2:** Property Puzzle Challenge: Create puzzles where students need to use properties of operations to solve equations. For example, provide incomplete equations and challenge students to use properties to find the missing numbers.

Standard 1.OA.B.4:

- **Activity 1:** Missing Addend Match-Up: Give students cards with incomplete subtraction equations (e.g., $10 - \underline{\quad} = 5$). Students find the missing addend that makes the equation true and match it with the correct answer card.
- **Activity 2:** Subtraction Scavenger Hunt: Hide objects around the classroom and assign each object a value. Provide students with subtraction equations where the result is 10 or less. Students search for the objects and use them to solve the equations.

Standard 1.OA.C.5:

- **Activity 1:** Counting Forward and Back: Students practice counting forward and backward on number lines. They use this skill to solve addition and subtraction problems, counting on or back from a given number.
- **Activity 2:** Number Line Relay: Divide the class into teams and set up number lines on the floor. Call out addition or subtraction problems, and one student from each team races to the correct answer on the number line.

Standard 1.OA.C.6:

- **Activity 1:** Fact Family Houses: Students create fact family houses using three numbers (e.g., 5, 8, 13) and related addition and subtraction equations. They identify the relationships between the numbers and equations.
- **Activity 2:** Strategy Tic-Tac-Toe: Create a Tic-Tac-Toe board with different addition and subtraction problems within 20. Students play in pairs, solving problems and using various strategies (e.g., making ten, counting on) to mark their X or O.

Standard 1.OA.D.7:

- **Activity 1:** True or False Sort: Provide students with a set of equations involving addition and subtraction. Students work individually or in pairs to determine if each equation is true or false. They use manipulatives, drawings, or mental math to verify their answers. Students then sort the equations into two categories: true and false.
- **Activity 2:** Equation Balancing: Create balance scale visuals with the equal sign in the center. Write equations on cards and place them on the scale. Students adjust the cards to make the scale balance, demonstrating their understanding of the equal sign.

Standard 1.OA.D.8:

- **Activity 1:** Equation Puzzles: Provide students with incomplete addition and subtraction equations. Students use manipulatives or drawings to solve for the missing number in each equation. They explain their reasoning for each solution and discuss different problem-solving strategies.
- **Activity 2:** Equation Race: Divide the class into teams and line them up. Provide each team with a set of incomplete addition and subtraction equations. On "Go," the first student from each team runs to the board, solves one equation, and returns to tag the next team member. The first team to correctly solve all equations wins the race.

Standard 1.DL.A.1:

- **Activity 1:** Graphing Fun: Provide students with a set of colored stickers or markers and a blank graphing template with three categories (e.g., red, blue, green). Instruct students to survey their classmates or family members about their favorite color and record the responses by placing stickers or coloring in the appropriate sections of the graph. After completing the graph, students analyze the data by counting the total number of responses in each category and comparing the quantities. Then, they ask and answer questions about the data, such as "Which color had the most votes?" or "How many more people chose blue than green?"

- **Activity 2:** Sorting and Counting: Provide students with a collection of objects (e.g., buttons, toy animals, colored blocks) representing three categories (e.g., shapes, colors, sizes). Students sort the objects into labeled bins or containers according to the categories. After sorting, students count the number of objects in each category and represent the data using drawings or tally marks. They then interpret the data by comparing the quantities in each category and discussing their findings.

Standard 1.NBT.A.1:

- **Activity 1:** Number Line Race: Draw a large number line on the floor or wall, starting from a number less than 120. Divide the class into teams and assign each team a starting number on the number line. Call out random numbers within the range of 1 to 120, and one student from each team races to the correct position on the number line. Students take turns representing numbers and counting along the number line until they reach 120.
- **Activity 2:** Number Hunt: Hide numbered cards around the classroom or outdoor area, each card displaying a numeral within the range of 1 to 120. Provide students with a recording sheet where they can write down the numbers they find. Students search for the hidden cards, read the numerals, and record them on their sheets. After finding all the cards, students discuss their findings as a class, practicing reading and writing numerals within the specified range.

RESOURCES

Teacher Resources:

- Universal Screeners for Number Sense: USNS Screener
- IM Centers Navigation Tool: Centers Navigation Tool
- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 2
- IM Student Work
- IM Blackline Masters
- Online District Approved Digital Resources

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Adding and Subtracting within 20

Target Course/Grade Level: 1

Unit Summary: In this unit, students develop an understanding of 10 ones as a unit called “a ten” and use the structure to add and subtract within 20. Here, students decompose and recompose addends to find the sum of two or three numbers. For example, to find the value of $9+6$, they may decompose 6 into 1 and 5, compose the 1 and 9 into 10, and find $10+5$. Subtraction work occurs throughout the unit and becomes the focus in the last section. Students consider taking away and counting on as methods for subtracting. They understand subtraction as an unknown-addend problem and use their knowledge of addition to find the difference of two numbers. Students solve story problems throughout the unit and learn two new problem types—Add To, Start Unknown and Take From, Change Unknown. Students compare the structure of different types of story problems as they practice adding and subtracting within 20.

Approximate Length of Unit: 6 Weeks

LEARNING TARGETS

NJ Student Learning Standards:

- 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.
- 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.
- 1.OA.B.3:** Apply properties of operations as strategies to add and subtract. 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.) (Clarification: Students need not use formal terms for these properties.)
- 1.OA.B.4:** Understand subtraction as an unknown-addend problem. For example, subtract $10-8$ by finding the number that makes 10 when added to 8.
- 1.OA.C.5:** Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- 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 $6 + 6 + 1 = 12 + 1 = 13$).

- 1.OA.D.7:** Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6=6$, $7=8-1$, $5+2=2+5$, $4+1=5+2$.
- 1.OA.D.8:** Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8+?=11$, $5=?-3$, $6+6=?$.
- 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.
- 1.NBT.B.2:** Understand that the two digits of a two-digit number represent amounts of tens and ones.
- 10 can be thought of as a bundle of ten ones — called a “ten.”
 - The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

Interdisciplinary Connections and Standards:

English Language Arts:

RI.CR.1.1: Ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how). : Students can read math word problems or math-related texts and answer questions about the key details presented in the problems or texts. This helps develop their reading comprehension skills while applying their understanding of mathematical concepts.

W.IW.1.2: With prompts and support, write informative/explanatory texts to examine a topic and convey ideas and information. : Students can write explanations or descriptions of math concepts and problem-solving strategies. This encourages them to articulate their understanding of math and communicate their thoughts clearly in writing.

SL.PI.1.4: Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly. : Students can orally explain their mathematical thinking, discuss problem-solving strategies, and describe the steps taken to solve a math problem. This develops their oral communication skills while reinforcing mathematical concepts.

SL.AS.1.6: Produce complete sentences when appropriate to task and situation. : Students can develop their math vocabulary by learning and using math-specific terms related to the targeted standards. They can practice using these words in conversations, writing exercises, and math discussions.

Career Readiness, Life Literacies, and Key Skills:

9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).

9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).

9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Science & Engineering Practices:

Asking questions and defining problems

Developing and Using Models

Constructing Explanations and Designing Solutions

Using Mathematics and Computational Thinking

Obtaining, evaluating, and communicating information

Social Studies Standards:

6.1.2.CivicsCM.1: Describe why it is important that individuals assume personal and civic responsibilities in a democratic society.

6.1.2.CivicsCM.2: Use examples from a variety of sources to describe how certain characteristics can help individuals collaborate and solve problems (e.g., open-mindedness, compassion, civility, persistence).

6.1.2.CivicsCM.3: Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps.

Unit Understandings:

- Students add and subtract within 20. Students apply the properties of operations and the relationship between addition and subtraction.

Unit Essential Questions:

- What patterns exist in number names that can be used to understand and represent larger numbers?
- Why can you add addends in any order?
- How do you solve a missing addend problem?
- How do you solve a subtraction/addition sentence using objects and drawings?
- How do operations relate to each other?
- How do I find differences by using related addition facts?
- How does the position of a digit in a number affect its value?
- How are place value patterns repeated in numbers?
- How do operations affect numbers?
- How can I use what I know about tens and ones to add two-digit numbers?
- How can I use what I know about tens and ones to subtract two-digit numbers?
- What pattern is seen when subtracting 10?
- How can using number relationships help me solve subtraction problems for two-digit numbers?

Knowledge and Skills:

Students will know...

- How to represent and solve problems involving addition and subtraction.
- How to understand and apply properties of operations and the relationship between addition and subtraction.
- How to add and subtract within 20.
- How to work with addition and subtraction equations.
- How to understand place value.
- How to use place value understanding and properties of operations to add and subtract.

Students will be able to...

- Build toward accuracy and efficiency with adding and subtracting within 10.
- Add and subtract one-digit numbers from teen numbers without composing or decomposing a ten.
- Find the value that makes an addition or subtraction equation true, involving 10.
- Understand 10 ones as a ten and the numbers 11 to 19 as a ten and some ones.
- Add within 20, including three addends.
- Subtract within 20.

EVIDENCE OF LEARNING

Assessment:

What evidence will be collected and deemed acceptable to show that students truly “understand”?

- Warm-ups
- Cool-downs
- Section Checkpoints
- Illustrative Math End-of-Unit Assessment
- Daily Exit Slips
- Standards Mastery Assessment (iReady)

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) 1.3 Lessons 1-28

Standard 1.OA.A.1:

- **Activity 1:** Word Problem Stations: Set up stations around the classroom, each station containing word problem cards. Each card presents a different scenario involving addition or subtraction within 20 and unknowns in various positions. Students rotate through the stations, reading the word problems and using objects or drawings to model the situations. They then write equations with a symbol for the unknown number and solve them to find the missing quantity. After completing all stations, students discuss their strategies and solutions with their peers.
- **Activity 2:** Subtraction Story Cards Activity: Create subtraction story cards with different scenarios involving subtraction within 20. Students pair up, share their cards' stories, and solve each other's subtraction problems using objects, drawings, or equations. Partners discuss strategies and rotate to engage with multiple scenarios, fostering peer learning and understanding.

Standard 1.OA.A.2:

- **Activity 1:** Three Numbers Challenge: Give each student a set of three number cards containing whole numbers less than or equal to 20. Students work individually or in pairs to create addition sentences using the three numbers on their cards. They use objects or drawings to represent the numbers and solve the addition sentences to find the total. Students then compare their totals with a partner and discuss any differences in their strategies.
- **Activity 2:** Storyboard Word Problems: Provide students with blank storyboard templates. Students create their own word problems that involve adding three whole numbers whose sum is

less than or equal to 20. They draw illustrations to represent the scenarios and write sentences describing the problem situations. After completing their storyboards, students exchange them with a partner to solve each other's word problems.

Standard 1.OA.B.3:

- **Activity 1:** Property Puzzles: Create sets of puzzle pieces, each containing an addition or subtraction equation and its solution. Mix up the puzzle pieces and distribute them to small groups of students. Students work together to match each equation with its solution, paying attention to the properties of operations used (e.g., commutative property, associative property). After completing the puzzles, students discuss how they identified the correct matches and the properties involved.
- **Activity 2:** Strategy Sort: Provide students with a variety of addition and subtraction problems within 20. In small groups or individually, students sort the problems based on the strategies they would use to solve them (e.g., counting on, making a ten, using known facts). After sorting the problems, students solve them using the appropriate strategies and compare their solutions with their peers.

Standard 1.OA.B.4:

- **Activity 1:** Unknown-Addend Game: Create a board game where players roll a die and move along a path, landing on spaces with subtraction sentences. For each subtraction sentence, one number is missing, represented by a blank space or a symbol. Players must determine the missing number by finding the addend that, when added to the known number, equals the given total. The first player to correctly determine the missing addends and reach the finish line wins the game.
- **Activity 2:** Missing Addend Mystery: Provide students with a series of subtraction sentences with missing addends (e.g., $10 - \underline{\quad} = 4$, $8 - \underline{\quad} = 3$). Students work individually to determine the missing addends using objects, drawings, or mental math strategies. After solving each subtraction sentence, students share their solutions with the class and explain how they found the missing addends.

Standard 1.OA.C.5:

- **Activity 1:** Counting Chains: Provide students with counting chains (strips of paper with numbers written in sequence). Instruct students to start at a given number and count on or count back by a specified amount (e.g., count on 2 to add 2). After practicing counting, introduce addition and subtraction problems related to the counting chain (e.g., If we start at 5 and count on 3, what number do we land on?).
- **Activity 2:** Counting Story Problems: Present students with story problems that involve counting, addition, or subtraction. Encourage students to use counting strategies to solve the problems (e.g., counting on to add, counting back to subtract). After solving each problem, students discuss their strategies with a partner and explain how they related counting to addition or subtraction.

Standard 1.OA.C.6:

- **Activity 1:** Problem-Solving Task Cards: Create sets of problem-solving task cards with addition and subtraction problems within 20. Students work in pairs or small groups to solve the problems, demonstrating accuracy and efficiency in their calculations. Encourage students to discuss their problem-solving strategies and justify their answers to their peers.
- **Activity 2:** Math Fact Race: Students work in pairs. Each pair has addition and subtraction flashcards (within 10). Set a timer (e.g., 1 minute). Students take turns solving flashcards. Correct answers earn points. Emphasizes accuracy and efficiency. Promotes accuracy and efficiency in mental math.

Standard 1.OA.D.7:

- **Activity 1:** Equation Sort: Prepare a set of equation cards, some true and some false, involving addition and subtraction within 20. Students work individually or in pairs to sort the equation cards into two categories: true and false. After sorting, students discuss why they placed each equation in its respective category, focusing on the meaning of the equal sign.
- **Activity 2:** True or False Challenge: Present students with a series of equations involving addition and subtraction within 20. Students determine if each equation is true or false and explain their reasoning. Encourage students to use concrete models or drawings to represent the equations and verify their answers.

Standard 1.OA.D.8:

- **Activity 1:** Missing Number Puzzles: Provide students with puzzles containing addition or subtraction equations with a missing number. Students work to determine the unknown number that makes each equation true. Encourage students to use inverse operations or mental math strategies to find the missing numbers.
- **Activity 2:** Equation Balancing: Create balance scale models or use digital interactive tools to represent equations. Students manipulate the scales to balance equations by determining the unknown numbers. Through hands-on exploration, students develop an understanding of the relationship between the numbers in the equation and the meaning of the equal sign.

Standard 1.NBT.A.1:

- **Activity 1:** 120 Chart Hopscotch: Create a hopscotch grid on the floor, labeling each square with a number from 1 to 120. Students take turns hopping on the squares, counting aloud as they move through the numbers. Encourage students to start at different numbers each time, reinforcing the ability to count starting from any number less than 120. To add variation, incorporate movement challenges such as hopping backward or skipping numbers by twos or fives.
- **Activity 2:** 120 Chart Mystery Path: Set up a "mystery path" around the classroom or outdoor area, marking each spot with a number from 1 to 120. Provide students with a starting number and a series of clues related to counting patterns (e.g., "Move forward 10 numbers," "Skip count by 2s," "Move backward 5 numbers"). Students follow the clues to navigate the mystery path, counting and writing down each number they land on. As students progress through the path, they practice counting to 120 and interpreting different counting instructions.

Standard 1.NBT.B.2.a:

- **Activity 1:** Tens and Ones Place Value Game: Create a game board divided into sections labeled "Tens" and "Ones." Provide students with numeral cards representing two-digit numbers (e.g., 15, 29, 47). Students take turns drawing a numeral card and placing it on the game board, representing the number using place value blocks or by moving counters to the corresponding sections. After representing the number, students discuss with their peers the value of the digits in the number and how it relates to the concepts of tens and ones.
- **Activity 2:** Number Composition Scavenger Hunt: Hide numeral cards or objects representing two-digit numbers (e.g., 14 pencils, 26 paperclips) around the classroom or outdoor area. Provide students with a recording sheet listing the numbers they need to find and decompose. Students search for the hidden items, collect them, and decompose each number into its tens and ones components. After completing the scavenger hunt, students share their findings with the class, explaining how they decomposed each number and represented it using place value.

Standard 1.NBT.B.2.b:

- **Activity 1:** Number Composition Challenge: Display numeral cards for numbers between 11 and 19. Divide students into pairs or small groups and provide each group with a set of numeral cards.

Students work together to decompose each number into its parts, identifying the ten and the ones. After decomposing the numbers, students can represent them using drawings or base-ten blocks to illustrate the concept of tens and ones. Encourage students to discuss different ways to compose each number, fostering mathematical reasoning and collaboration.

- **Activity 2:** Number Composition with Manipulatives: Provide base-ten blocks or manipulatives. Show 10 as one ten block. Give numeral cards for 11 to 19. Students use blocks to represent numbers. For 13, use one ten block and three units. Discuss different ways to compose numbers. Reinforces understanding of tens and ones.

RESOURCES

Teacher Resources:

- Universal Screeners for Number Sense: USNS Screener
- IM Centers Navigation Tool: Centers Navigation Tool
- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 3
- IM Student Work
- IM Blackline Masters
- Online District Approved Digital Resources

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Numbers to 99

Target Course/Grade Level: 1

Unit Summary: This unit develops students' understanding of the structure of numbers in base ten, allowing them to see that the two digits of a two-digit number represent how many tens and ones there are. Here, as they count and group quantities, students generalize the structure of two-digit numbers in terms of the number of tens and ones. This understanding enables students to transition from counting by one to counting by ten and then counting on. For example, to count to 73, they may count 7 tens and count on—71, 72, 73. Students interpret and use multiple representations of two-digit numbers: connecting cubes, base-ten diagrams, words, and expressions. Connecting cubes in towers of 10 and singles are used instead of base-ten blocks, which will be used in later grades, so units of ten can be physically composed and decomposed with the cubes. Students also represent two-digit numbers with their own drawings. They may start by drawing towers of ten and show each unit of one within each ten, and later simplify their drawings to show rectangles for tens and small squares for ones. Encourage students to use the drawings that make sense to them, and for those who create the more abstract drawing, to express how many ones each ten represents. To help students make sense of base-ten representations, give students access to connecting cubes—towers of 10 and singles—in all lessons. Some students may also benefit from access to double 10-frames and two-color counters, however all students should be encouraged to work toward using connecting cubes in towers of 10 and singles. Later in the unit, students use the value of the digits to compare two-digit numbers and learn to use comparison symbols ($<$, $>$) to record their comparisons. The unit concludes with opportunities for students to explore different ways of using tens and ones to represent two-digit numbers.

Approximate Length of Unit: 5 Weeks

LEARNING TARGETS

NJ Student Learning Standards:

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.

1.NBT.B.2: Understand that the two digits of a two-digit number represent amounts of tens and ones.

a. 10 can be thought of as a bundle of ten ones — called a “ten.”

b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

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 ones).

- 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 $<$.
- 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.
- 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.
- 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.

Interdisciplinary Connections and Standards:

English Language Arts:

RI.CR.1.1: Ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how). : Students can read math word problems or math-related texts and answer questions about the key details presented in the problems or texts. This helps develop their reading comprehension skills while applying their understanding of mathematical concepts.

W.IW.1.2: With prompts and support, write informative/explanatory texts to examine a topic and convey ideas and information. : Students can write explanations or descriptions of math concepts and problem-solving strategies. This encourages them to articulate their understanding of math and communicate their thoughts clearly in writing.

SL.PI.1.4: Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly. : Students can orally explain their mathematical thinking, discuss problem-solving strategies, and describe the steps taken to solve a math problem. This develops their oral communication skills while reinforcing mathematical concepts.

SL.AS.1.6: Produce complete sentences when appropriate to task and situation. : Students can develop their math vocabulary by learning and using math-specific terms related to the targeted standards. They can practice using these words in conversations, writing exercises, and math discussions.

Career Readiness, Life Literacies, and Key Skills:

9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).

9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Science & Engineering Practices:

Asking questions and defining problems

Developing and Using Models

Constructing Explanations and Designing Solutions

Using Mathematics and Computational Thinking

Obtaining, evaluating, and communicating information.

Social Studies Standards:

6.1.2.CivicsCM.1: Describe why it is important that individuals assume personal and civic responsibilities in a democratic society.

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6.1.2.CivicsCM.3: Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps.

Unit Understandings:

- Students develop an understanding of place value for numbers up to 99.

Unit Essential Questions:

- How does the position of a digit in a number affect its value?
- How are place value patterns repeated in numbers?
- How do operations affect numbers?
- What makes a computational strategy both effective and efficient?
- How can I use what I know about tens and ones to add two-digit numbers?
- How can I use what I know about tens and ones to subtract two-digit numbers?
- What pattern is seen when subtracting 10?
- How can using number relationships help me solve subtraction problems for two-digit numbers?
- How can words and symbols be used to illustrate the comparison of numbers?
- What is the meaning of less than, greater than, and equal to?

Knowledge and Skills:

Students will know...

- How to extend the counting sequence.
- How to understand place value.
- How to use place value understanding and properties of operations to add and subtract.

Students will be able to...

- Add and subtract multiples of 10.
- Represent the base-ten structure of multiples of 10 up to 90 using towers of 10, drawings, numbers, or words.
- Add and subtract multiples of 10.
- Represent the base-ten structure of numbers up to 99 using drawings, numbers, and words.
- Understand that the two digits of a two-digit number represent amounts of tens and ones.
- Compare 2 two-digit numbers based on the values of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.
- Represent two-digit numbers in different ways, using different amounts of tens and ones.

EVIDENCE OF LEARNING

Assessment:

What evidence will be collected and deemed acceptable to show that students truly “understand”?

- Warm-ups
- Cool-downs
- Section Checkpoints
- Illustrative Math End-of-Unit Assessment
- Daily Exit Slips
- Standards Mastery Assessment (iReady)

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) 1.4 Lessons 1-23

Standard 1.NBT.A.1:

- **Activity 1:** Counting Collections: Provide each student with a collection of objects (such as counting bears, buttons, or cubes) and a recording sheet. Instruct students to count the objects in their collection and write the corresponding numeral on their recording sheet. Encourage students to start counting from any number less than 120 and continue until they reach the total count of their collection. Circulate the classroom to support students as they count and write numerals. After completing the activity, students can share their collections with a partner or the class, explaining their counting process and the final number they reached.
- **Activity 2:** Create a board game with spaces numbered from 1 to 120, arranged in a path or grid. Divide students into small groups and provide each group with a game board, a token or marker, and a die. To play, students take turns rolling the die and moving their token forward the corresponding number of spaces. When landing on a space, students must read the numeral aloud and write it on a recording sheet. If a student rolls a number that would take them beyond 120, they must count backwards to adjust their position on the board. The first player to reach 120 wins the game, but all players continue until everyone reaches the end. This game encourages students to practice counting to 120 while also reinforcing numeral recognition and writing skills in a fun and interactive way.

Standard 1.NBT.B.2a-c:

- **Activity 1:** Place Value Bingo: Create Bingo cards with two-digit numbers randomly placed in the squares. Call out numbers in expanded form (e.g., "10 is one ten and zero ones," "32 is three tens and two ones"). Students mark the corresponding number on their Bingo cards. The first student to get a line horizontally, vertically, or diagonally shouts "Bingo!" and explains the place value of the numbers they've marked.
- **Activity 2:** Place Value Puzzles: Provide students with sets of cards, each containing a two-digit number. Students work individually or in pairs to match each number card with its corresponding

representation in base ten blocks or expanded form. Encourage students to discuss their reasoning for each match and how they determined the value of the tens and ones.

Standard 1.NBT.B.3:

- **Activity 1:** Number Line Race: Draw a large number line on the floor or on a wall. Assign each student a starting point on the number line. Call out pairs of two-digit numbers for comparison (e.g. - 36 and 45). Students race to the correct position on the number line to show which number is greater or less than the other.
- **Activity 2:** Greater Than, Less Than Game: Divide the class into teams and provide each team with a set of digit cards (0-9). Draw a two-digit number on the board (e.g., 72). Teams take turns creating another two-digit number using the digit cards and comparing it to the number on the board using the symbols $>$, $<$, or $=$.

Standard 1.NBT.C.4:

- **Activity 1:** Base Ten Block Addition: Provide students with two-digit numbers and one-digit numbers written on cards. Students use base ten blocks to represent each number and model the addition on their desks or on a large mat. After solving each problem, students record their answers and explain their reasoning.
- **Activity 2:** Adding Multiples of 10: Give students sets of number cards containing two-digit numbers and multiples of 10 (e.g., 24, 30, 56, 70). Students select two cards from each set and add them together using concrete models or drawings, focusing on adding the tens first and then the ones.

Standard 1.NBT.C.5:

- **Activity 1:** Number Line Hop: Create a number line on the floor or wall with two-digit numbers marked at intervals. Call out a starting number (e.g. - 42) and ask students to hop forward or backward 10 spaces. Students say the resulting number and explain how they found it.
- **Activity 2:** Missing Number Puzzles: Give students sets of puzzles with a two-digit number missing from a sequence (e.g., 31, __, 51). Students mentally find 10 more or 10 less than the given number to complete the sequence.

Standard 1.NBT.C.6:

- **Activity 1:** Base Ten Block Subtraction: Provide students with sets of number cards containing two-digit numbers and multiples of 10. Students select two cards from each set and model subtraction using base ten blocks, focusing on subtracting the tens first and then the ones. After modeling each subtraction, students record their answers and explain their strategies.
- **Activity 2:** Subtraction Stories: Create story problems involving subtracting multiples of 10 (e.g., "Samantha had 60 marbles. She gave away 30 of them. How many marbles does she have now?"). Students act out the stories using manipulatives or drawings to represent the quantities and solve the problems, emphasizing the removal of groups of ten.

RESOURCES

Teacher Resources:

- Universal Screeners for Number Sense: USNS Screener
- IM Centers Navigation Tool: Centers Navigation Tool
- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 4
- IM Student Work
- IM Blackline Masters
- Online District Approved Digital Resources

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Adding within 100

Target Course/Grade Level: 1

Unit Summary: In this unit, students add within 100, using place value and properties of operations in their reasoning. Previously, students composed, decomposed, and compared numbers within 100. They reasoned about units of tens and ones and represented numbers with connecting cubes, base-ten drawings, expressions, and equations in different ways. They build on these understandings of place value to find sums. Students begin by adding a two-digit number with another two-digit number or with a one-digit number where it is not necessary to compose a new ten. Then, they observe cases in which adding some ones together requires composing a new ten. Two broad methods for finding sums are explored: adding on by place (adding on tens, then ones), and adding units by place (combining tens with tens and ones with ones). Along the way, they also compare methods from earlier work, such as counting on and making use of known sums, including sums of 10. To make sense of methods for adding (especially as it relates to composing a ten when adding ones and ones), students work with a variety of representations—connecting cubes in towers of 10 and singles, base-ten drawings, expressions, and equations. They also use different representations to share their thinking with others. Expressions and equations are presented horizontally here to encourage students to make sense of the numbers and ways of adding rather than apply an algorithm. Eventually, they write equations to represent their thinking. Students are not expected to write or use equations in any specific way. Even in activities that focus on interpreting and writing equations, students should have continued access to drawings and other tools for sense making. Provide access to connecting cubes in towers of 10 and singles throughout the unit.

Approximate Length of Unit: 4 weeks

LEARNING TARGETS

NJ Student Learning Standards:

- 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.
- 1.NBT.B.2** Understand that the two digits of a two-digit number represent amounts of tens and ones. b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
- 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 $<$.

- 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.
- 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.
- 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.
- 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.
- 1.OA.C.5** Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- 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 $6 + 6 + 1 = 12 + 1 = 13$).
- 1.OA.D.8** Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = \diamond - 3$, $6 + 6 = \diamond$.

Interdisciplinary Connections and Standards:

English Language Arts:

- RI.CR.1.1:** Ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how). : Students can read math word problems or math-related texts and answer questions about the key details presented in the problems or texts. This helps develop their reading comprehension skills while applying their understanding of mathematical concepts.
- W.IW.1.2:** With prompts and support, write informative/explanatory texts to examine a topic and convey ideas and information. : Students can write explanations or descriptions of math concepts and problem-solving strategies. This encourages them to articulate their understanding of math and communicate their thoughts clearly in writing.
- SL.PI.1.4:** Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly. : Students can orally explain their mathematical thinking, discuss problem-solving strategies, and describe the steps taken to solve a math problem. This develops their oral communication skills while reinforcing mathematical concepts.
- SL.AS.1.6:** Produce complete sentences when appropriate to task and situation. : Students can develop their math vocabulary by learning and using math-specific terms related to the targeted standards. They can practice using these words in conversations, writing exercises, and math discussions.

Career Readiness, Life Literacies, and Key Skills:

- 9.4.2.CT.2:** Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).
- 9.4.2.CT.3:** Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
- 9.4.2.CI.1:** Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
- 9.4.2.IML.2:** Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Science & Engineering Practices:

Asking questions and defining problems

Developing and Using Models

Constructing Explanations and Designing Solutions

Using Mathematics and Computational Thinking

Obtaining, evaluating, and communicating information

Social Studies Standards:

6.1.2.CivicsCM.1: Describe why it is important that individuals assume personal and civic responsibilities in a democratic society.

6.1.2.CivicsCM.2: Use examples from a variety of sources to describe how certain characteristics can help individuals collaborate and solve problems (e.g., open-mindedness, compassion, civility, persistence).

6.1.2.CivicsCM.3: Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps..

Unit Understandings:

- Students use place value understanding and properties of operations to add within 100

Unit Essential Questions:

- How can we represent a two-digit number using its tens and ones place values?
- How does the value of a digit change based on its position in the number (tens place vs. ones place)?
- What strategies can we use to compare two-digit numbers (e.g., by place value)?
- How can we use ten frames to represent two-digit numbers?
- How can we use ten frames when finding the sum of two numbers?

Knowledge and Skills:

Students will know...

- How to represent two-digit numbers using their tens and ones place values.
- How to explain how a digit's value changes depending on where it's located in the number.
- How to break down two-digit numbers into their tens and ones components.

Students will be able to...

- Add within 100 without composing a ten.
- Use equations to represent addition methods.
- Add a one-digit and a two-digit number within 100 by composing a ten.
- Add 2 two-digit numbers within 100 by composing a ten.

EVIDENCE OF LEARNING

Assessment:

What evidence will be collected and deemed acceptable to show that students truly “understand”?

- Warm-ups
- Cool-downs
- Section Checkpoints
- Illustrative Math End-of-Unit Common Assessment
- Daily Exit Slips
- Standards Mastery Assessment (iReady)

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) 1.5 Lessons 1-14

Standard 1.NBT.A.1

- **Activity 1:** 120 Chart Fill-in: Provide students with partially filled 120 charts where some numbers are missing. Students fill in the missing numbers by counting forward or backward from the given starting point.
- **Activity 2:** Number Line Relay: Divide the class into teams. Place several number lines around the room, each starting from a different number less than 120. One student from each team starts at a number on the number line and counts forward to 120. They then tag the next team member to continue counting from where they left off.

Standard 1.NBT.B.2

- **Activity 1:** Tens and Ones Blocks: Provide students with base-ten blocks and have them represent numbers from 11 to 19 using a ten rod and individual unit cubes. This helps reinforce the idea that these numbers are composed of a ten and some ones.
- **Activity 2:** Number Decomposition: Give students a two-digit number and have them decompose it into its tens and ones components using manipulatives or drawings. For example, for the number 16, students would show 1 ten and 6 ones.

Standard 1.NBT.B.3

- **Activity 1:** Tens and Ones Comparison: Provide students with pairs of two-digit numbers written on cards. Have them compare the numbers using place value blocks or drawings to understand which number has more tens or ones.
- **Activity 2:** Interactive Whiteboard Comparison: Use an interactive whiteboard or digital manipulatives to compare two two-digit numbers. Students can drag and drop place value blocks to represent the numbers and then use comparison symbols to compare them.

Standard 1.NBT.C.4

- **Activity 1:** Base Ten Addition: Provide students with base ten blocks and have them model addition problems such as $27 + 5$. They can physically group the tens and ones together to find the total.
- **Activity 2:** Addition Story Problems: Present students with addition story problems involving adding a two-digit number and a one-digit number. Have them use drawings or manipulatives to solve the problems and explain their reasoning.

Standard 1.NBT.C.5

- **Activity 1:** Number Line Hop: Draw a number line on the floor or use a large one on the wall. Call out a two-digit number, and have students physically hop forward or backward to find the number that is 10 more or 10 less.
- **Activity 2:** 10 More, 10 Less Game: Create a board game where students move game pieces along a path. Each time they land on a space, they have to mentally find the number that is 10 more or 10 less than the number on the space.

Standard 1.NBT.C.6

- **Activity 1:** Subtraction with Base Ten Blocks: Provide students with base ten blocks to model subtraction problems such as $50 - 20$. They can physically remove the tens blocks to represent subtracting multiples of 10.
- **Activity 2:** Subtraction Number Line: Draw a large number line on the floor or use one on the wall. Have students use it to model subtraction problems by hopping backward to subtract multiples of 10.

Standard 1.OA.A.1

- **Activity 1:** Word Problem Task Cards: Create task cards with different addition and subtraction word problems within 20. Students can work independently or in small groups to solve the problems and then share their strategies.
- **Activity 2:** Real-Life Scenarios: Present students with real-life scenarios involving addition and subtraction within 20, such as sharing snacks or counting objects. Have them write and solve their own word problems based on these scenarios.

Standard 1.OA.C.5

- **Activity 1:** Counting Collections: Provide students with collections of objects and have them count them. Then, ask them to use addition or subtraction to find out how many objects would be left if some were added or removed.
- **Activity 2:** Counting Patterns: Explore counting patterns with students, such as counting by twos or fives. Then, relate these patterns to addition and subtraction by showing how adding or subtracting groups of numbers follows the same pattern.

Standard 1.OA.C.6

- **Activity 1:** Math Fact Fluency Games: Set up games such as "Math Fact Bingo" or "Around the World" where students practice their addition and subtraction facts within 20 in a fun and engaging way.
- **Activity 2:** Math Fact Races: Have students compete against each other or against the clock to see who can correctly solve addition and subtraction problems within 20 the fastest.

Standard 1.OA.D.8

- **Activity 1:** Equation Balancing: Provide students with equations missing one of the numbers, such as $8 + ? = 11$. Have them use manipulatives or drawings to balance the equation and find the missing number.
- **Activity 2:** Equation Writing: Give students word problems and have them write the corresponding addition or subtraction equations with the missing number. Then, they can solve the equations to find the missing number.

<i>RESOURCES</i>

Teacher Resources:

- Place Value Assessment Tool: PVAT
- IM Centers Navigation Tool: Centers Navigation Tool
- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 5
- IM Student Work
- IM Blackline Masters
- Online District Approved Digital Resources

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Length Measurements within 120 Units

Target Course/Grade Level: 1

Unit Summary: In this unit, students extend their knowledge of linear measurement while continuing to develop their understanding of operations, algebraic thinking, and place value. In kindergarten, students identified attributes of objects that can be compared, such as length, weight, and capacity. In this unit, students compare the length of objects by lining them up at their endpoints, and explore ways to compare lengths of two objects that cannot be lined up. From there, they transition to the idea of iterating length units, or using the same length unit allows us to measure the lengths of objects and to communicate measurements clearly. Students begin by using the length of a connecting cube as a unit of measurement. Because connecting cubes snap together, students can focus on counting the length of the cubes without worrying about any gaps or overlaps in the units. Later, students measure with length units that don't connect together, such as paper clips and base-ten cubes (centimeter cubes), but do not refer to formal units of length. They develop precision as they make sure that there are no gaps or overlap in the units used to measure. Some objects that students measure by iterating small units yield measurements of over 100 length units. Students consider how to count and represent these larger groups of objects—up to 120—with a written number. They use familiar representations (connecting cubes and base-ten drawings) to recognize 100 as 10 tens, but do not consider the unit of a hundred until grade 2. Later in the unit, students solve problems in various contexts, including measurement. They revisit Compare, Difference Unknown story problems and learn to solve Compare, Bigger Unknown and Smaller Unknown problems about lengths. Next, students are introduced to a new problem type: Take From, Start Unknown. They practice solving all story problems types with unknowns in all positions.

Approximate Length of Unit: 4 weeks

LEARNING TARGETS

NJ Student Learning Standards:

- 1.M.A.1** Order three objects by length; compare the lengths of two objects indirectly by using a third object.
- 1.M.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. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.
- 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.

- 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 $<$.
- 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.
- 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.
- 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.
- 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.
- 1.OA.B.4** Understand subtraction as an unknown-addend problem. For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.
- 1.OA.C.5** Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- 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 $6 + 6 + 1 = 12 + 1 = 13$).
- 1.OA.D.7** Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false?
 $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$

Interdisciplinary Connections and Standards:

English Language Arts:

- RI.CR.1.1:** Ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how). : Students can read math word problems or math-related texts and answer questions about the key details presented in the problems or texts. This helps develop their reading comprehension skills while applying their understanding of mathematical concepts.
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Career Readiness, Life Literacies, and Key Skills:

9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).

9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Science & Engineering Practices:

Asking questions and defining problems

Developing and Using Models

Constructing Explanations and Designing Solutions

Using Mathematics and Computational Thinking

Obtaining, evaluating, and communicating information

Social Studies Standards:

6.1.2.CivicsCM.1: Describe why it is important that individuals assume personal and civic responsibilities in a democratic society.

6.1.2.CivicsCM.2: Use examples from a variety of sources to describe how certain characteristics can help individuals collaborate and solve problems (e.g., open-mindedness, compassion, civility, persistence).

6.1.2.CivicsCM.3: Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps.

Unit Understandings:

- Students measure length and count up to 120 length units. They solve addition and subtraction story problems with unknowns in all positions.

Unit Essential Questions:

- How can we arrange objects from shortest to longest?
- How can we compare the lengths of two objects indirectly using a third object as a reference?
- How do we measure the length of an object using smaller units?
- Why is it important to make sure there are no gaps or overlaps when measuring an object?
- How high can we count? Can we start counting from any number?
- How do we compare two numbers based on their tens and ones digits?
- What symbols do we use to show if a number is greater than, equal to, or less than another number?

Knowledge and Skills:

Students will know...

- How to measure length and count up to 120 length units.
- How to solve addition and subtraction story problems with unknowns in all positions.

Students will be able to...

- Compare the lengths of objects indirectly.
- Order objects by length.
- Count groups of up to 120 objects and write a number to represent them.
- Lay length units end-to-end with no gaps or overlaps and count the units to determine length.
- Solve story problems within 20 with unknowns in all positions

EVIDENCE OF LEARNING

Assessment:

What evidence will be collected and deemed acceptable to show that students truly “understand”?

- Warm-ups
- Cool-downs
- Section Checkpoints
- Illustrative Math End-of-Unit Common Assessment
- Daily Exit Slips
- Standards Mastery Assessment (iReady)

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) 1.6 Lessons 1-17

Standard: 1.NBT.A.1

- **Activity 1:** Number Line Race: Create a number line from 0 to 120 on the floor or a wall in the classroom. Divide students into teams and give each team a starting number less than 120. Have students take turns counting from their starting number to 120, writing the numerals on the number line as they go. The first team to correctly count to 120 wins the race.
- **Activity 2:** Number Building: Provide students with a variety of manipulatives, such as base ten blocks or counting cubes. Ask students to choose a number between 1 and 120 and represent it using the manipulatives. Encourage students to write the numeral for their chosen number and display it along with their manipulative representation.

Standard: 1.NBT.B.3

- **Activity 1:** Number War: Divide students into pairs and give each pair a set of number cards with two-digit numbers written on them. Instruct students to take turns drawing two cards from their set and comparing the numbers using the symbols $>$, $=$, or $<$. Encourage students to explain their reasoning for each comparison.
- **Activity 2:** Number Line Challenge: Create a large number line on the floor or wall in the classroom with two-digit numbers spaced out along it. Call out two numbers and have students stand on the number line to show which number is greater or less. Encourage students to justify their placement on the number line based on the meanings of the tens and ones digits.

Standard: 1.NBT.C.4

- **Activity 1:** Base Ten Addition: Provide students with base ten blocks and a set of addition cards with two-digit numbers and one-digit numbers. Instruct students to use the base ten blocks to model and solve the addition problems on the cards. Encourage students to explain their strategies for adding two-digit numbers, emphasizing the importance of regrouping when necessary.
- **Activity 2:** Number Line Addition: Create a large number line on the floor or wall in the classroom with two-digit numbers spaced out along it. Give each student a number card with a two-digit number written on it. Have students take turns standing on the number line and adding a one-digit number to their starting number by moving forward the appropriate number of spaces.

Standard: 1. NBT.C.5

- **Activity 1:** Ten More, Ten Less Race: Create a game board with a path of spaces numbered from 1 to 120. Give each student a starting number between 1 and 110. Instruct students to take turns rolling a die and moving their game piece forward the number of spaces rolled. Encourage students to mentally find ten more or ten less than their current space and explain their reasoning for each move.
- **Activity 2:** Ten More, Ten Less Challenge: Provide students with a set of number cards with two-digit numbers written on them. Instruct students to choose a card and mentally find ten more and ten less than the number on their card. Encourage students to explain their reasoning for finding ten more or ten less, emphasizing the patterns in the tens and ones places.

Standard: 1.OA.A.1,

- **Activity 1:** Word Problem Scavenger Hunt: Create a set of word problem cards that involve addition and subtraction within 20, with unknowns in all positions. Hide the cards around the classroom or schoolyard. Have students work in pairs or small groups to find and solve the word problems, using objects, drawings, or equations to represent the problems.
- **Activity 2:** Story Problem Bingo: Create bingo cards with different addition and subtraction story problems written on them. Call out the story problems, and have students solve them using objects, drawings, or equations.

Standard: 1.OA.2

- **Activity 1:** Word Problem Scenarios -Create or gather a set of word problems that involve situations of adding to, taking from, putting together, taking apart, and comparing. Ensure each problem has an unknown quantity. Read the word problems to the students and encourage them to use objects or drawings to represent the problem. Once they have a visual representation, guide them to write an equation with a symbol for the unknown (e.g., $8 - ? = 3$) to represent the problem algebraically.
- **Activity 2:** Interactive Problem Solvin- Provide each group with a set of large dice or number cards (0-20). Create or use prepared problem cards that include various addition and subtraction word problems within 20. Each card should have space for writing solutions. One student rolls the dice or selects a number card. This number represents the total or starting quantity in the word problem scenario. Another student draws a problem card from the stack and reads it aloud to the group. Together, the group works to solve the problem using objects, drawings, or equations. They can write their solution on a whiteboard or problem-solving mat.

Standard 1.OA.B.4

- **Activity 1:** Number Bond Problem- Create or print number bond puzzle templates. Each template should have a large circle (representing the total) and two smaller circles (representing parts). Demonstrate how to use counters or manipulatives to solve a number bond puzzle. Use an example like $10 = 8 + ?$ and show how to find the unknown addend by adding counters to the smaller circle until you reach 10. Distribute the number bond puzzles to the students. Encourage them to use manipulatives to represent the parts and find the missing addend for each puzzle.
- **Activity 2:** Subtraction Story Problems -Present the first story problem to the class. For example, "There are 10 apples. 8 apples are red. How many apples are another color?" Encourage students to think about what number needs to be added to 8 to make 10. Discuss different strategies students might use to solve the problem. Encourage them to draw pictures or use manipulatives if needed to represent the apples and find the missing addend. Distribute the story problem cards to students or pairs. Have them solve each problem, writing their solutions on whiteboards or paper. Encourage them to use the strategy of finding the missing addend.

Standard 1.OA.C.5

- **Activity 1:** Counting On Show students a number card (e.g., 3) and ask students to count on 2. Encourage students to count on using their fingers or objects if needed. Give students more examples to practice counting on by different numbers (e.g., count on 3 from 4, count on 1 from 7). Have students write addition equations based on their counting on. For example, after counting on 2 from 3, they would write $3 + 2 = 5$.
- **Activity 2:** Counting Back- Show a number card (e.g., 5) and ask students to count back 2. Encourage students to practice counting back using their fingers or objects. Provide examples for students to practice counting back by different numbers (e.g., count back 3 from 7, count back 1 from 6). Have students write subtraction equations based on their counting back. For example, after counting back 2 from 5, they would write $5 - 2 = 3$.

Standard 1.OA.C.6

- **Activity 1:** Math Fact Fluency Games: Set up games such as "Math Fact Bingo" or "Around the World" where students practice their addition and subtraction facts within 20 in a fun and engaging way.
- **Activity 2:** Math Fact Races: Have students compete against each other or against the clock to see who can correctly solve addition and subtraction problems within 20 the fastest.

Standard 1.OA.D.7

- **Activity 1:** Equation Match-Up: Create a set of equation cards, some with true equations (e.g., $5 = 5$) and some with false equations (e.g., $6 = 8 - 3$). Mix up the cards and have students match each equation card with its corresponding true or false label. Encourage students to explain why each equation is true or false, emphasizing the meaning of the equal sign.
- **Activity 2:** Equation Balance: Write a series of equations on the board, some true and some false, using numbers within 20. Have students use manipulatives or drawings to represent each side of the equation and visually determine if the equation is balanced. Encourage students to explain their reasoning for determining whether each equation is true or false.

Standard 1.M.A.1

- **Activity 1:** Length Sorting and Comparing: Provide students with three sets of objects with clearly distinguishable lengths. Ask students to work in pairs or small groups to sort their sets of objects by length and place them on the sorting mats.
- **Activity 2:** Length Hunt and Comparison: Scatter a variety of classroom objects around the room. Ensure there are at least three objects with noticeable differences in length. Explain to students that they will go on a "length hunt" around the classroom. Their task is to find and observe objects of different lengths. Provide each student or pair with a recording sheet or worksheet with spaces to write down their observations.

Standard 1.M.A.2

- **Activity 1:** Measuring with Linking Cubes Provide students with linking cubes to measure the lengths of different objects in the classroom. Students will record data on a data sheet.
- **Activity 2:** String Measurement-Provide students with various pieces of string or yarn 10cm each in length and with several objects of varying lengths (e.g., books, crayons). Encourage them to measure each object using pieces of string, laying them end to end with no gaps or overlaps. Count the number of string pieces used to measure each object and record the measurements on a recording sheet or worksheet.

RESOURCES

Teacher Resources:

- Place Value Assessment Tool: PVAT
- IM Centers Navigation Tool: Centers Navigation Tool
- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 6
- IM Student Work
- IM Blackline Masters
- Online District Approved Digital Resources

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Geometry and Time

Target Course/Grade Level: 1

Unit Summary: In this unit, students focus on geometry and time. They expand their knowledge of two- and three-dimensional shapes, partition shapes into halves and fourths, and tell time to the hour and half of an hour. Center activities and warm-ups continue to enable students to solidify their work with adding and subtracting within 20 and adding within 100. In kindergarten, students learned about flat and solid shapes. They named, described, built, and compared shapes. They learned the names of some flat shapes (triangle, circle, square, and rectangle) and some solid shapes (cube, sphere, cylinder, and cone). Here, students extend those experiences as they work with shape cards, pattern blocks, geoblocks, and solid shapes. They develop increasingly precise vocabulary as they use defining attributes (“squares have four equal length sides”) rather than non-defining attributes (“the square is blue”) to describe why a specific shape belongs to a given category. Students should, however, focus on manipulating, comparing, and composing shapes and using their own language, rather than learning the formal definitions of shapes. Next, students transition to thinking about how to partition shapes into halves and fourths or quarters. These experiences allow them to learn the language of fractions. Students come to understand that as they continue to make more equal pieces, each piece gets smaller. In the last section, students tell time to the hour and half hour. They learn about the hour and minute hands and what an analog clock looks like when the hour hand moves from one hour to the next. The experience of partitioning circles helps students make sense of time on the clock. Students see that half hours are when the minute hand has moved halfway around the clock, and the time can be written as “half past” or ___ : 30.

Approximate Length of Unit: 4 weeks

LEARNING TARGETS

NJ Student Learning Standards:

- 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.
- 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.
- 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.

- 1.M.B.3** Tell and write time in hours and half-hours using analog and digital clocks
- 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.
- 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.
- 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.
- 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 $6 + 6 + 1 = 12 + 1 = 13$).
- 1.OA.D.7** Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.

Interdisciplinary Connections and Standards:

English Language Arts:

- RI.CR.1.1:** Ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how). : Students can read math word problems or math-related texts and answer questions about the key details presented in the problems or texts. This helps develop their reading comprehension skills while applying their understanding of mathematical concepts.
- W.IW.1.2:** With prompts and support, write informative/explanatory texts to examine a topic and convey ideas and information. : Students can write explanations or descriptions of math concepts and problem-solving strategies. This encourages them to articulate their understanding of math and communicate their thoughts clearly in writing.
- SL.PI.1.4:** Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly. Students can orally explain their mathematical thinking, discuss problem-solving strategies, and describe the steps taken to solve a math problem. This develops their oral communication skills while reinforcing mathematical concepts.
- SL.AS.1.6:** Produce complete sentences when appropriate to task and situation. : Students can develop their math vocabulary by learning and using math-specific terms related to the targeted standards. They can practice using these words in conversations, writing exercises, and math discussions.

Career Readiness, Life Literacies, and Key Skills:

- 9.4.2.CT.1:** Gather information about an issue, such as climate change, and collaboratively.
- 9.4.2.CT.2:** Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).
- 9.4.2.CT.3:** Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
- 9.4.2.CI.1:** Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
- 9.4.2.IML.2:** Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Science & Engineering Practices:

Asking questions and defining problems

Developing and Using Models

Constructing Explanations and Designing Solutions

Using Mathematics and Computational Thinking

Obtaining, evaluating, and communicating information.

Social Studies Standards:

6.1.2.CivicsCM.1: Describe why it is important that individuals assume personal and civic responsibilities in a democratic society.

6.1.2.CivicsCM.2: Use examples from a variety of sources to describe how certain characteristics can help individuals collaborate and solve problems (e.g., open-mindedness, compassion, civility, persistence).

6.1.2.CivicsCM.3: Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps.

Unit Understandings:

- Students reason with shapes and their attributes, partition shapes into equal pieces, and tell time to the hour and half hour.

Unit Essential Questions:

- What shapes do we see around us every day, and how can we describe them?
- How can we sort shapes by their different characteristics, like sides and corners?
- Where do you see shapes in our classroom or at home?
- How can we split a shape into pieces that are all the same size?
- Why is it important for the pieces to be equal when we share shapes?
- Can you think of ways we use equal parts in our everyday life?
- How do we know when it's time for different activities during the day?
- How can we read the clock to know what time it is, like when it's snack time or playtime?
- What do you do when it's time to get ready for bed or go to school?

Knowledge and Skills:

Students will know...

- How to reason with shapes and their attributes, partition shapes into equal pieces, and tell time to the hour and half hour.

Students will be able to...

- Describe attributes of two-dimensional and three-dimensional shapes.
- Compose two-dimensional or three-dimensional shapes to create a composite shape.
- Build and draw shapes to possess defining attributes.
- Partition circles and rectangles into two and four equal pieces, describe the pieces with words (halves, fourths, and quarters).
- Tell and write time in hours and half-hours.

EVIDENCE OF LEARNING

Assessment:

What evidence will be collected and deemed acceptable to show that students truly “understand”?

- Warm-ups
- Cool-downs
- Section Checkpoints
- Illustrative Math End-of-Unit Common Assessment
- Daily Exit Slips
- Standards Mastery Assessment (iReady)

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) 1.7 Lessons 1-17

Standard: 1.G.A.1

- **Activity 1:** Attribute Drawing: Provide students with a variety of shapes (e.g., triangles, rectangles, circles) and drawing materials. Instruct students to draw shapes and label the defining attributes (e.g., number of sides, angles) while ignoring non-defining attributes (e.g., color, orientation). Encourage students to share and discuss their drawings, focusing on the defining attributes of each shape.
- **Activity 2:** Shape Sorting: Prepare a collection of shape cards, each with a different shape depicted on it. Divide students into small groups and provide them with sorting mats labeled "Defining Attributes" and "Non-Defining Attributes." Have students sort the shape cards onto the appropriate mats based on their defining attributes, discussing their reasoning with their group members.

Standard: 1.G.A.2

- **Activity 1:** Shape Building Challenge: Provide students with a variety of two-dimensional and three-dimensional shape manipulatives (e.g., pattern blocks, geometric solids). Challenge students to create composite shapes by combining multiple shapes together (e.g., a house made from rectangles, squares, and triangles). Encourage students to explore different combinations and explain the defining attributes of their composite shapes.
- **Activity 2:** Shape Sculpture Design: Divide students into small groups and provide each group with modeling materials such as clay or playdough. Instruct students to work together to design and build three-dimensional sculptures using a combination of shapes. Encourage students to think about how they can combine shapes to create interesting and stable structures, discussing the defining attributes of each shape used.

Standard: 1.G.A.3

- **Activity 1:** Shape Partitioning: Provide students with circular and rectangular paper cut-outs. Instruct students to fold each shape into two or four equal shares. Have students describe the shares using the words halves, fourths, and quarters, and explain that decomposing into more equal shares creates smaller shares.
- **Activity 2:** Fraction Pizza Making: Provide students with circular paper cut-outs to represent pizzas. Instruct students to partition their pizzas into two or four equal slices. Encourage students to describe the slices using fractions (e.g., "I have one-fourth of the pizza").

Standard: 1.M.B.3:

- **Activity 1:** Clock Match-Up: Create a set of analog clock cards showing various times in hours and half-hours (e.g., 1:00, 2:30). Create a set of matching digital clock cards showing the corresponding times. Mix up the cards and have students match each analog clock card with its corresponding digital clock card.
- **Activity 2:** Time Bingo: Create bingo cards with different times written in both analog and digital formats. Call out the times, and have students mark the corresponding spaces on their bingo cards. The first student to get a row or column marked shouts "Bingo!" and wins the game.

Standard: 1.NBT.A.1

- **Activity 1:** Number Line Race: Create a number line from 0 to 120 on the floor or a wall in the classroom. Divide students into teams and give each team a starting number less than 120. Have students take turns counting from their starting number to 120, writing the numerals on the number line as they go. The first team to correctly count to 120 wins the race.
- **Activity 2:** Number Building: Provide students with a variety of manipulatives, such as base ten blocks or counting cubes. Ask students to choose a number between 1 and 120 and represent it using the manipulatives. Encourage students to write the numeral for their chosen number and display it along with their manipulative representation.

Standard: 1.NBT.C.4

- **Activity 1:** Base Ten Addition: Provide students with base ten blocks and a set of addition cards with two-digit numbers and one-digit numbers. Instruct students to use the base ten blocks to model and solve the addition problems on the cards. Encourage students to explain their strategies for adding two-digit numbers, emphasizing the importance of regrouping when necessary.
- **Activity 2:** Place Value Puzzles: Create a set of addition puzzles with two-digit numbers and one-digit numbers. Write the puzzles on cards, with each card containing a different addition problem. Divide students into small groups and have them solve the puzzles together, discussing their strategies and reasoning with their group members.

Standard: 1.NBT.C.5

- **Activity 1:** Ten More, Ten Less Challenge: Provide students with a set of number cards with two-digit numbers written on them. Instruct students to choose a card and mentally find ten more and ten less than the number on their card. Encourage students to explain their reasoning for finding ten more or ten less, emphasizing the patterns in the tens and ones places.
- **Activity 2:** Number Line Jumps: Draw a number line from 0 to 120 on the floor or a wall in the classroom. Call out a two-digit number, and have students take turns jumping forward or backward ten spaces on the number line to find the number that is ten more or ten less.

Standard: 1.OA.C.6

- **Activity 1:** Fact Family Fun: Write a fact family on the board (e.g., $7 + 3 = 10$, $3 + 7 = 10$, $10 - 7 = 3$, $10 - 3 = 7$). Have students work in pairs to come up with as many related addition and subtraction facts as they can for the given fact family. Encourage students to demonstrate accuracy and efficiency by quickly recalling the related facts.
- **Activity 2:** Addition/Subtraction Race: Create a set of addition and subtraction flashcards with numbers within 20. Divide students into pairs and give each pair a set of flashcards. Set a timer and have students race against each other to solve as many flashcards as they can within a set time limit.

Standard: 1.OA.D.7

- **Activity 1:** Equation Match-Up: Create a set of equation cards, some with true equations (e.g., $5 = 5$) and some with false equations (e.g., $6 = 8 - 3$). Mix up the cards and have students match each equation card with its corresponding true or false label. Encourage students to explain why each equation is true or false, emphasizing the meaning of the equal sign.
- **Activity 2:** Equation Balance: Write a series of equations on the board, some true and some false, using numbers within 20. Have students use manipulatives or drawings to represent each side of the equation and visually determine if the equation is balanced. Encourage students to explain their reasoning for determining whether each equation is true or false.

RESOURCES

Teacher Resources:

- Place Value Assessment Tool: PVAT
- IM Centers Navigation Tool: Centers Navigation Tool
- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 7
- IM Student Work
- IM Blackline Masters
- Online District Approved Digital Resources

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Putting It All Together

Target Course/Grade Level: 1

Unit Summary: In this unit, students revisit major work and fluency goals of the grade, applying their learning from the year. In Section A, students add and subtract within 20, concurrently working toward the goal of adding and subtracting fluently within 10. In Section B, they practice solving story problems of familiar types (those introduced in earlier units). In Section C, students count and represent numbers within 120. Each of these topics is critical for students' readiness for the work in grade 2, in which students will expand their understanding of place value and add and subtract within 100. The sections in this unit are standalone sections, not required to be completed in order. The goal is to offer ample opportunities for students to integrate the knowledge they have gained and to practice skills related to the expected fluencies of the grade.

Approximate Length of Unit: 3 weeks

LEARNING TARGETS

NJ Student Learning Standards:

- 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.
- 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.
- 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 $6 + 6 + 1 = 12 + 1 = 13$).
- 1.OA.D.7** Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.
- 1.OA.D.8** Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = _ - 3$, $6 + 6 = _$.
- 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.

- 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 $<$.
- 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.

Interdisciplinary Connections and Standards:

English Language Arts:

- RI.CR.1.1:** Ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how). : Students can read math word problems or math-related texts and answer questions about the key details presented in the problems or texts. This helps develop their reading comprehension skills while applying their understanding of mathematical concepts.
- W.IW.1.2:** With prompts and support, write informative/explanatory texts to examine a topic and convey ideas and information. : Students can write explanations or descriptions of math concepts and problem-solving strategies. This encourages them to articulate their understanding of math and communicate their thoughts clearly in writing.
- SL.PI.1.4:** Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly. Students can orally explain their mathematical thinking, discuss problem-solving strategies, and describe the steps taken to solve a math problem. This develops their oral communication skills while reinforcing mathematical concepts.
- SL.AS.1.6:** Produce complete sentences when appropriate to task and situation. : Students can develop their math vocabulary by learning and using math-specific terms related to the targeted standards. They can practice using these words in conversations, writing exercises, and math discussions.

Career Readiness, Life Literacies, and Key Skills:

- 9.4.2.CT.2:** Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).
- 9.4.2.CT.3:** Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
- 9.4.2.CI.1:** Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
- 9.4.2.IML.2:** Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10)

Science & Engineering Practices:

- Asking questions and defining problems
- Developing and Using Models
- Constructing Explanations and Designing Solutions
- Using Mathematics and Computational Thinking
- Obtaining, evaluating, and communicating information

Social Studies Standards:

- 6.1.2.CivicsCM.1:** Describe why it is important that individuals assume personal and civic responsibilities in a democratic society.
- 6.1.2.CivicsCM.2:** Use examples from a variety of sources to describe how certain characteristics can help individuals collaborate and solve problems (e.g., open-mindedness, compassion, civility, persistence).
- 6.1.2.CivicsCM.3:** Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps.

Unit Understandings:

- Students consolidate and solidify their understanding of various concepts and skills. They also continue to work towards accurate and efficient goals.

Unit Essential Questions:

- How can we use adding and taking away to solve problems with numbers up to 20?
- How can we use pictures and numbers to help us solve story problems about adding and subtracting?
- What are some ways we can quickly add and subtract numbers up to 10?
- Why is it helpful to understand how addition and subtraction are connected?
- How can we tell if an addition or subtraction problem is correct?
- How do we find the missing number in a problem like " $8 + ? = 11$ "?
- What does the equal sign mean in math problems?
- How can we compare two numbers to see which is bigger or smaller?
- What are some ways we can add numbers together, like a two-digit number and a one-digit number?
- How do we write and understand numbers up to 120?

Knowledge and Skills:

Students will know...

- How to add and subtract within 20
- How to solve story problems
- Numbers to 120

Students will be able to...

- Add and subtract within 20.
- Fluently add and subtract within 10.
- Solve Add To and Take From, Change Unknown story problems in a way that makes sense to them.
- Solve, Compare, Difference Unknown story problems in a way that makes sense to them.
- Solve Put Together/Take Apart, Addend Unknown story problems in a way that makes sense to them. Apply place value understanding to represent a quantity with written numerals and expressions.
- Count a group of up to 120 objects

EVIDENCE OF LEARNING

Assessment:

What evidence will be collected and deemed acceptable to show that students truly “understand”?

- Warm-ups
- Cool-downs
- Section Checkpoints
- Illustrative Math End-of-Unit Assessment
- Daily Exit Slips
- Standards Mastery Assessment (iReady)

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) 1.8 Lessons 1-10

Standard: 1.OA.A.1

- **Activity 1:** Story Problem Puzzles: Create sets of picture cards with different story problems involving adding to, taking from, putting together, taking apart, and comparing situations. Each card should have a picture representing the problem. Have students work in pairs to solve the problems by using objects or drawings. They need to find the missing number in each problem and match it with the correct answer card. Example problem: "There were 8 cookies on the plate. Sam ate some of them. Now there are 3 left. How many did Sam eat?"
- **Activity 2:** Mystery Number: Choose a mystery number within 20. Create a series of clues related to adding to, taking from, putting together, taking apart, and comparing situations that would lead students to guess the mystery number. Students work together to solve each clue and narrow down the possibilities until they correctly identify the mystery number.

Standard: 1.OA.A.2

- **Activity 1:** Adding Three Numbers Game: Provide each student with three dice. In pairs or small groups, students take turns rolling the dice and adding the three numbers together. They need to keep track of their score and ensure that the sum of the three numbers is less than or equal to 20. The player with the highest score without going over 20 wins the round.
- **Activity 2:** Word Problem Sort: Prepare a set of word problem cards that involve adding three whole numbers whose sum is less than or equal to 20. Divide students into small groups and provide each group with a set of word problem cards. Students work together to sort the cards into categories of "Less than 10," "Between 10 and 20," and "Equal to 20." After sorting, they solve each problem and explain their reasoning to the class.

Standard: 1.OA.C.6

- **Activity 1:** Make Ten Memory Game: Create a set of cards with numbers less than 10 written on them. Shuffle the cards and place them face down on the table. Students take turns flipping over two cards. If the two numbers can be added to make ten, they keep the pair. If not, they flip the cards back over, and it's the next player's turn. The game continues until all the matches have been made, and the player with the most pairs wins.
- **Activity 2:** Fact Family Sort: Prepare sets of cards with fact families on them, such as (3, 7, 10) or (8, 2, 10). Students work in pairs or small groups to match each set of numbers with the corresponding addition and subtraction equations that make up the fact family. They can use manipulatives or drawings to help them visualize the relationships between the numbers and operations.

Standard: 1.OA.D.7

- **Activity 1:** Equation Sort: Create a set of cards with equations involving addition and subtraction, both true and false. Students work in pairs or small groups to sort the cards into two categories: true equations and false equations. After sorting, they explain why each equation is true or false, using manipulatives or drawings to represent the numbers and operations.
- **Activity 2:** Equation Balance: Draw a balance scale on a large piece of paper or use a physical balance scale if available. Write true and false equations involving addition and subtraction on cards. Students take turns placing the equation cards on the balance scale, trying to balance the scale by ensuring both sides are equal. After each turn, they discuss whether the equation is true or false and why.

Standard: 1.OA.D.8

- **Activity 1:** Missing Number Bingo: Create bingo cards with equations like " $8 + ? = 11$ " or " $5 = _ - 3$." Call out equations, and students solve them mentally to find the missing number. If they have the missing number on their bingo card, they cover it with a marker. The first student to get a row covered shouts "Bingo!" and wins the game.
- **Activity 2:** Equation Challenge: Provide students with a set of equations with missing numbers, like " $6 + 6 = _$." Challenge them to solve each equation mentally and fill in the missing number. Students can work independently or in pairs, and they can use manipulatives or drawings to help them visualize the numbers and operations.

Standard: 1.NBT.A.1

- **Activity 1:** Number Line Race: Draw a number line from 1 to 120 on the floor or a large piece of paper. Divide students into teams and assign each team a starting number less than 120. Give each team a numbered card representing a different number within the range. Students take turns standing on the number line and counting to 120 from their starting number. The team that reaches 120 first wins the race.
- **Activity 2:** Number Hunt: Hide numbered objects or cards around the classroom or outdoor area, ranging from 1 to 120. Give students a list of numbers to find within the range. Students search for the hidden numbers and record where they find each one on their list. After finding all the numbers, they can discuss their findings as a class.

Standard: 1.NBT.B.3

- **Activity 1:** Tens and Ones Bingo: Create bingo cards with two-digit numbers written in either standard form or represented by base ten blocks. Call out two-digit numbers, and students mark the corresponding number on their bingo cards. To make it more challenging, call out the numbers in word form, and students need to convert them to standard form or base ten blocks before marking their cards.
- **Activity 2:** Greater Than, Less Than Sort: Prepare sets of cards with pairs of two-digit numbers written on them. Students work individually or in pairs to compare each pair of numbers using the symbols $>$, $=$, or $<$. They sort the cards into three categories: greater than, equal to, and less than. After sorting, they explain their reasoning for each comparison to the class.

Standard: 1.NBT.C.4

- **Activity 1:** Base Ten Block Addition: Provide students with base ten blocks or drawings representing two-digit numbers and one-digit numbers. Students use the base ten blocks to add the numbers together, focusing on regrouping when necessary. After adding each set of numbers, they record their answers and explain their reasoning, emphasizing the relationship between place value and addition.
- **Activity 2:** Multiple of 10 Matching: Create sets of cards with two-digit numbers and multiples of 10 written on them. Students work in pairs to match each two-digit number with the corresponding multiple of 10. They can use base ten blocks or drawings to visualize the relationship between the numbers and explain their matches to their partner.

RESOURCES

Teacher Resources:

- Place Value Assessment Tool: PVAT
- IM Centers Navigation Tool: Centers Navigation Tool
- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 8
- IM Student Work
- IM Blackline Masters
- Online District Approved Digital Resources

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks