Mathematics

Stonington Public Schools

Grade 1

Stonington Public Schools

Mathematics Grade 1

BOE Approved: Date

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Subject philosophy

Stonington's K-5 math curriculum focuses on developing deep conceptual understanding by engaging students in meaningful learning experiences that connect new concepts to prior knowledge. In K-2, this philosophy emphasizes hands-on exploration with manipulatives such as counters, number lines, pattern blocks, and base ten blocks, which help students visualize and internalize mathematical concepts.

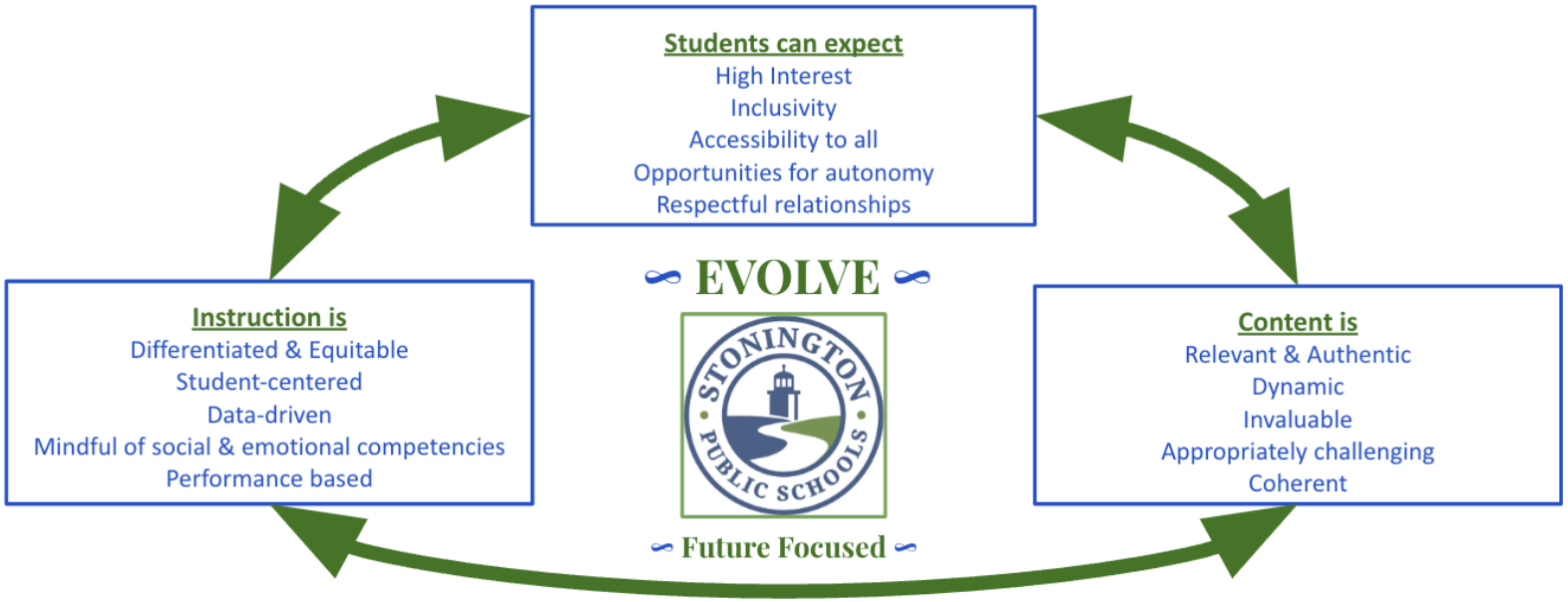
Collaboration is central to our approach. Students are regularly engaged in partner work and small group activities that encourage rich peer discussions. Through these conversations, students explain their thinking, ask questions, and build on one another's ideas. Setting clear norms helps establish a culture where every contribution is valued, and diverse ways of solving problems are

celebrated. Norms include:

- We value and respect each other's contributions: Everyone has knowledge worth listening to and building on.
- We explain and discuss our thinking: Sharing and reasoning are part of how we learn.
- We solve problems in many different ways: There are multiple paths to success in math.
- We embrace a growth mindset: Mistakes are valuable learning opportunities.

To support engagement and content mastery, the curriculum integrates predictable instructional routines that build confidence and focus student and teacher attention on mathematical ideas. The curriculum encourages productive struggle, where students persevere through challenging tasks with appropriate support. Real-life application problems are integrated to make math meaningful and relevant, fostering curiosity and critical thinking. By linking topics, concepts, and mathematical models across six modules at each grade level, Stonington's Grade 1 mathematics program creates a strong foundation for enduring mathematical understanding and problem-solving.

District Curriculum Philosophy



Curriculum Philosophy from a Student Perspective

Students in Stonington Public Schools will engage with an inclusive, evolving curriculum that will drive students to understand themselves as learners. While learning their individual strengths through a variety of experiences, students will build the self-awareness, self-management, and entrepreneurship needed to have knowledgeable voices and make positive impacts on the modern world.

Curriculum Philosophy from an Instructional Perspective

Instruction in Stonington Public Schools will utilize culturally, socially and emotionally conscious practices to include multiple perspectives. It will be meaningful to students by incorporating multifaceted pedagogical approaches including inquiry, collaboration, and reflection. Instruction will provide all students opportunities to respond, equitable assessments, and constructive feedback. Teachers will engage in dynamic and reflective practices to advance their craft.

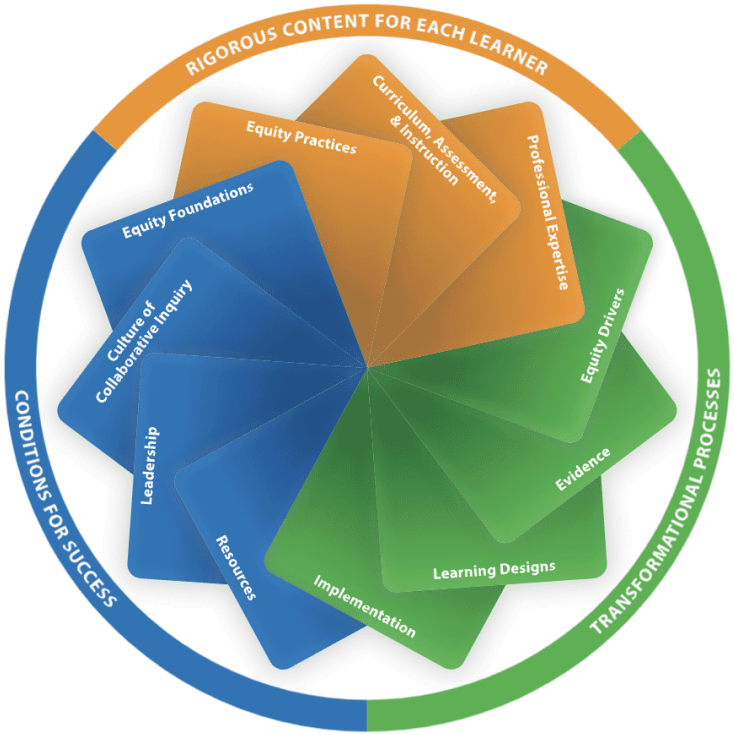
Curriculum Philosophy from a Content Perspective

Content in Stonington Public Schools will be constantly adapting to reflect current and relevant information along with the state and national standards for each discipline. Through a rich, authentic, and coherent curriculum, students will learn that the past informs the future. The curriculum will be complex and will provide optimum challenges for all students with the goal of preparing knowledgeable, solution driven, productive citizens who are ready and prepared for the diverse global community.

All graduates of Stonington Public Schools will possess the self-leadership skills for post-secondary success in enrollment, enlistment, or employment.

Curriculum Equity Statement

Board of Education Goal 2: Future-Focused Teaching and Learning
Stonington Public Schools will prepare every student for their own educational journey by implementing forward-thinking practices that foster equity and inclusion to allow all students access to educational programming. (2023-2024)



Learning results in equitable and excellent outcomes for *all* students when educators…

- Prioritize high-quality curriculum and instructional materials, assess student learning, and understand curriculum and its implementation through instruction.
- Understand their students' historical, cultural, and societal contexts, embrace student assets through instruction, and foster relationships with students, families, and communities.
- Establish expectations for equity, create structures to ensure equitable access to learning, and sustain a culture of support for all students and staff.
- Prioritize equity in professional learning practices, identify and address their own biases and beliefs, and collaborate with diverse colleagues.

("Standards for Professional Learning - Standards 2022")

Mathematics - Grade 1

Critical Areas of Focus

In Grade 1, students focus on developing a strong foundation in place value and number sense by emphasizing the composition and use of units, particularly the unit of ten. Through hands-on exploration and problem-solving, students learn to flexibly manipulate numbers by decomposing tens and using them as benchmark numbers to create easier and more efficient problem-solving strategies. This focus aligns with the coherent K-5 progression in Eureka Math Squared, which emphasizes consistent math models and problem-solving methods. Repeated exposure to these models helps students visualize and internalize mathematical concepts, fostering a deep understanding of numbers and operations.

Instruction is guided by a three-part lesson structure—Launch, Learn, and Land—that promotes student engagement and encourages mathematical discussions. Lessons are intentionally designed to incorporate reading, writing, and listening tasks. This structure fosters meaningful interactions and provides a supportive framework for building mathematical understanding.

Daily fluency routines, such as choral response, whiteboard exchange, count-by exercises, and sprints, help students develop fluency and automaticity in counting and calculating. These structured routines provide consistent opportunities for all students to actively participate and build essential math skills. The repetition and predictability of these activities allow for efficient teaching and learning across all lessons.

Problem-solving is supported by the read–draw–write process, where students read problems carefully to identify key information, draw models to visualize the problem, and write equations and explanations to communicate their thinking. This approach develops critical thinking and problem-solving skills, helping students organize their mathematical reasoning systematically.

The curriculum also integrates mathematical practices with SEL competencies by embedding routines that encourage persistence, reasoning, and collaborative problem-solving. Students are offered multiple entry points to problem-solving tasks, ensuring inclusivity for diverse learners and fostering confidence in their ability to engage with complex mathematical challenges.

Pacing Guide (Year Course)					
Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Counting, Comparison, and Addition	Addition and Subtraction Relationships	Properties of Operations to Make Easier Problems	Properties of Operations to Make Easier Problems	Place Value Concepts to Compare, Add, and Subtract	Attributes of Shapes & Advancing Place Value, Addition, and Subtraction
30 classes/70 minutes each	28 classes/70 minutes each	29 classes/70 minutes each	15 classes/70 minutes each	25 classes/70 minutes each	32 classes/70 minutes each

Unit 1

Name of Unit: Counting, Comparison, and Addition	**Length of unit:** 30 classes/70 minutes per meeting

Content Standards Addressed in the Unit:

1.OA.B.3 Apply properties of operations as strategies to add and subtract.
1.OA.C.5 Relate counting to addition and subtraction
1.OA.C.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).
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.NBT.B.2 Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

- 1.NBT.B.2.bThe 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.MD.C.4 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.

Big Ideas:	**Essential Question(s):**
• I can organize and show information to help compare and understand it better. • I can start from any number and count on to find the total faster. • I can use addition number sentences to show and solve problems in the real world. • I can add numbers in any order and still get the same answer.	• Why can it be helpful to show sorted objects by using a graph or chart? • How can we use number bonds and number sentences to show how we find totals? • Why can we add numbers in any order? • Why is it helpful to count on from the larger number to find totals? • What happens when we add 0 or 1 to any number?

	● How can we use a chart to help us find all the ways to make 6, 7, 8, 9, and 10? ● How can we use groups to help us organize and count?
Students will know: ● How to organize and represent data with up to three categories and write how many are in each category. ● That the symbols > (greater than) , = (equal to), and < (less than) are used to compare quantities. ● That counting on from 10 is a strategy to find totals between 11 and 19. ● How to determine if an addition and/or subtraction number sentence is true or false. ● Efficient strategies for fluently decomposing totals within 10. ● How to add fluently within 10. ● Efficient strategies for adding within 20 such as counting on or by creating an equivalent but easier problem. ● Addition number sentences can be used to represent the total number of objects in a set. ● That the commutative property of addition is a strategy to add.	**Students will be able to:** ● Apply the commutative property of addition as a strategy to add. ● Count on to find the total number of objects in a set and represent the total with an addition number sentence. ● Add within 20 by using strategies such as counting on or by creating an equivalent but easier problem. ● Add fluently within 10. ● Fluently decompose totals within 10 in more than one way. ● Determine whether addition and/or subtraction number sentences are true or false. ● Count on from 10 to find totals between 11 and 19. ● Compare category totals in graphs by using the symbols >, =, and <. ● Organize and represent data with up to three categories and write how many are in each category.

Significant Task 1: Ways to Make 6, 7, 8, 9, and 10

Lessons:

Lesson 20: Find all two-part expressions equal to 6.
Lesson 21: Find all two-part expressions equal to 7 and 8.
Lesson 22: Find all two-part expressions equal to 9 and 10.

Overview of Key Learning:

Over this 5 day sequence of lessons students build knowledge about two part expressions to a given total (6, 7, 8, 9, or 10) using a systematic method. Each lesson focuses on a new total starting number and culminating with the number 10. They use two sided counters in order to evaluate the finite number of solutions. The teacher displays an Addition Totals chart in order to organize and debrief the work that is completed in each lesson.

Lessons Sequence Overview

Student Exit Tickets

Timeline: 5 days

Significant Task 2: Organize, Count, and Record a Collection

Counting collections are best used as a frequent routine, as students benefit from opportunities to internalize the procedure, choose new collections, and try new counting strategies. They will be included in future lessons, however, consider doing them more often as time allows.

Overview of Key Learning:

Partners or small groups work to count and record a collection of objects by using tools and strategies of their choice. Through comparing and connecting strategies, students recognize the value of organizing objects into groups to count efficiently. Students may display a range of abilities. This lesson can be done over several days giving students time to count several collections. After modeling Counting Collections as a whole group and small group guided lesson - counting collections can be placed in a math center, station, rotation, or provocation. Consider bringing in collections of special, seasonal, or high interest items for counting to keep counting collections engaging for students. There is no exit ticket for this lesson. Evaluate counting collections work samples to assess student understanding and progress.

Counting Collections Routine:

- Choose a set of objects and organizing tools.
- Make a good guess about how many objects are in the collection.
- Plan how to count the collection
- Count the collection.
- Show how you counted the collection on paper.
- Share your work.

Timeline: 2 days- Day 1: count a collection as a class. Day 2: count a collection in partners or small groups. Follow up: Place counting collections in a center, station, rotation, or provocation.

Common Learning Experiences:

Core Instruction: In module 1, students organize data to make counting and comparing easier, and advance to apply counting on as a strategy for addition. Students compare equivalent ways to make the same total and reason about the meaning of the equal sign.

Routines/Models: Math instruction in Stonington uses instructional routines, or predictable patterns of classroom interaction, to allow students and teachers to focus on mathematical content. Routines intentionally support engagement, discussion, and building content knowledge. In this unit organize data on bar graphs, picture graphs, and tally charts to count and compare, counting collections of objects, counting and organizing data on a number path, counting on from a known part shown as a number, a picture, or dots on a dice, counting on using fingers and a number path, decomposing numbers 6-10 using number bonds are all used in order to enhance student understanding of math concepts and establish routines.

Fluency: Fluency provides distributed practice with previously learned material. It is designed to prepare students for new learning by activating prior knowledge and bridging small learning gaps. Fluency uses routines that promote engagement, require participation from every student, and develop automaticity with counting and calculating. Students become familiar with fluency routines because the routines are used consistently across modules and grade levels, allowing for efficient teaching and learning. Some fluency routines in this module include Choral Response, White Board Exchange; Counting, adding, and subtracting using tools like a fingers, Rekenrek, meter stick, and ruler. Some repeated fluency activities include Ready, Set, Add; Put together/Take apart; Make 10/Make 100.

Key vocabulary:

Doubles- An addition number sentence or expression where both parts are the same number. Doubles can also be shown with objects.
Expression - An expression is like a number sentence, but there is no equal sign.
Graph - A way of organizing and representing, or showing, information so that we can ask and answer questions.
Hour hand - The short hand on a clock, which points to the hour.
Minute hand - The long hand on a clock, which points to the minutes.
O'clock - We say "o'clock" to say the time when the minute hand points to 12. For example, when the hour hand points to 1 and the minute hand points to 12, we say that the time is one o'clock.
Unknown - A number that we need to figure out.

Evidence of Understanding - Common Assessments

- Module 1 Equip
- Topic Ticket A
- Topic Ticket B
- Topic Ticket C
- Module 1 Assessment

Teacher notes:

- Resources:
  - Level 1 & 2 Implementation Guide
  - Counting Collections Recording Sheet
  - Ready, Set, Compare- fluency game- lessons 1-3
  - 10-Frame Fill-Up- fluency game- introduced in Lesson 7
  - Roll a Total- introduced in Lesson 8- practice counting on to add and making tally marks
  - Ready, Set, Add- fluency game- lesson 10
  - Shake Those Disks
  - Match- Expressions
  - Additions totals anchor chart - Teacher Made Material
  - Additions totals pocket chart with expression cards
  - Other K-2 Games

- Anticipated Student Misconceptions:
  - Students may not know that the words whole and total mean the same thing. Students may confuse whole for hole.
  - In Topic 1, students may think the gray shading every other 5 boxes on the number path is the total already shaded for them. Explain and discuss the number path shading pattern every 5 boxes and review this throughout the unit.
  - In Topic 1, students may think tally marks should have 5 lines and then the slash across.
  - Lesson 23 assumes students know the doubles facts and goes into doubles plus one facts, consider pre teaching and practice doubles facts before lesson 23.

- Differentiation Strategies:
  - In Topic 1, allow students to come up with ideas for collections or items around the room to count to increase student engagement.

- Safety Considerations: N/A

- Prior Knowledge:
  Kindergarten Module 3 - In kindergarten, students compare the number of objects in a set using language such as *more than*, *fewer than*, and *the same as*. They compare numbers to 10 using language such as *greater than*, *less than*, and *equal to*.

  Kindergarten Module 5 - Kindergartners represent composition and decomposition situations using number bonds and number sentences. They solve *add to with result unknown* and *put together with total unknown* problem types.

  Kindergarten Module 6 - At the end of kindergarten, students decompose teen numbers as ten ones and some more ones and write the decomposition as a 10+ fact.

- Interdisciplinary Connections:
    - Math Past- Chinese Counting Rods- Lesson 6
        - Lesson 6 uses popsicle sticks as tally marks. The Math Past Resource on page 362 explains how the ancient Chinese used rods to represent numbers and provides an extension lesson.

- Optional Content-
    - Lesson 17 content about clocks and time

Unit 2

Name of Unit: Addition and Subtraction Relationships	**Length of unit:** 28 classes/70 minutes per meeting

Content Standards Addressed in the Unit:

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.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 fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).
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 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.MD.C.4 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.

Big Ideas:	**Essential Question(s):**
• I can figure out how things get smaller or change by using subtraction. • I can decide if I need to add or subtract to solve a problem. • **I** can find the missing number in a problem by thinking carefully and using what I know about numbers. • I can use both addition and subtraction to solve problems and find missing numbers. • I can compare numbers and use math strategies to show	• How do we know when to add or when to subtract? • How can we use addition to solve subtraction problems efficiently? • What process can we use to solve word problems? • Does the unknown represent a part or the total? • What is different about counting on to find a total and counting on to find an unknown part? • How can we find the value of the unknown in an addition or a subtraction equation?

how they are different or the same.	• What are some ways to make two groups equal? • What ways can we use to figure out how many more one group has than another?
Students will know: • That addition and subtraction are related. • How to determine when to use addition or subtraction. • Conjectures to solve subtraction problems. • Different strategies to solve unknown result word problems. • The Read, Draw, Write process to solve word problems. • The difference between add to with result unknown problems and take from with result unknown problems. • That number bonds can represent addition or subtraction problems. • Different strategies to solve put together and take apart change unknown word problems. • That counting on and counting back using various tools can allow them to find unknown addends and subtrahends in equations. • That they can use number bonds to find missing parts in part-total relationships. • That adding or taking away objects from a group can make two groups equal.	**Students will be able to:** • Represent and solve word problems within 20 involving grades K and 1 addition and subtraction problem types. • Represent by using drawings and a number sentence and solve *how many more* word problems within 20. • Subtract by using think addition strategies. • Subtract within 20 by using strategies such as counting on or back. • Subtract fluently within 10. • Add or subtract to make groups equal and write a true number sentence to match. • Find the unknown in an addition or subtraction equation. • Answer questions about a graph.

Significant tasks:

Significant Task 1: School Bus Stories for Subtraction
Lesson Sequence Overview
Topic Ticket
Lessons:
Lesson 1- Represent *result unknown* problems and record as addition or subtraction number sentences.
Lesson 2- Subtract all or subtract 0.
Lesson 3- Subtract 1 or subtract 1 less than the total.

Lesson 4- Use fingers to subtract 4, 5, and 6 efficiently.

Overview of Key Learning:

Topic A introduces a module-long study of the relationship between addition and subtraction. Students solve *add to* and *take from with result unknown* problems using a school bus template, Unifix cubes, and school bus stories. These problem types are an accessible way to begin because they involve action that students can visualize. Topic A gives students many opportunities to notice and reason about what happens when they add to and take from a number. Their observations help them differentiate between addition and subtraction.

Students solve sets of related problems and notice and discuss patterns to formulate conjectures. They test their conjectures on new problems and create problems that follow the same pattern. Ultimately, students use these statements as tools to help them solve related problems efficiently.

Timeline: 4 days

Significant Task 2:

Lesson Sequence

Overview of Learning: Students move toward work with comparison word problems first by making groups equal. They learn the strategies to figure out how many more are in one group than in another: take away the extra amount in one group or add the extra amount to one group. They record the action as a true addition or subtraction number sentence. They compare two groups of objects by showing or drawing the amounts next to each other.

Lessons:

Day 1 - Students learn they can make groups equal by adding more to one group or taking away the “extra” from one group.

Day 2 - Students use similar reasoning to compare two quantities. They draw each quantity, one above the other.

Day 3 - Students identify either how many extra the larger quantity has or how many more the smaller quantity needs to be equal.

Day 4 - Students apply their knowledge about comparing to groups to analyze a farm graph

Graphing Activity

Topic Assessment

Timeline: 4 days

Common Learning Experiences:

Core Instruction: Module 2 uses word problems to help students notice relationships between addition and subtraction. Students are introduced to *change unknown* and comparison problem types, and they explore ways of finding an unknown part for the first time.

Routines/Models: Math instruction in Stonington uses instructional routines, or predictable patterns of classroom interaction, to allow students and teachers to focus on mathematical content. Routines intentionally support engagement, discussion, and building content knowledge. In this unit representing result unknown problems with school bus stories, using minus zero, minus 1, minus all, minus all but 1 conjunctures, using fingers to take away 4, 5, and 6, using the Read-Draw-Write process so solve word problems for addition and subtraction, representing adding and subtracting with number bonds and number paths, counting on or back to add and subtract, use pennies to find an unknown change and

compare two groups are all used in order to enhance student understanding of math concepts and establish routines.

Fluency: Fluency provides distributed practice with previously learned material. It is designed to prepare students for new learning by activating prior knowledge and bridging small learning gaps. Fluency uses routines that promote engagement, require participation from every student, and develop automaticity with counting and calculating. Students become familiar with fluency routines because the routines are used consistently across modules and grade levels, allowing for efficient teaching and learning. Some fluency routines in this module include: 5-Groups, Choral Response, Take Away, Number Bond Dash, Whiteboard Exchange, Happy Counting, Say 10 Push-Ups, Green Light, Red Light, Finger Flash, Sprint, and I Say, You Say.

Key vocabulary:

Equation - An equation is like a number sentence. It is different because we can write it to show that a number is unknown.

Evidence of Understanding - Common Assessments

- Equip Module 2 & 3
- Topic Ticket A
- Topic Ticket C
- Topic Ticket D
- Module 2 Assessment

Teacher notes:

- Resources:
  - GLevel 1 & 2 Implementation Guide
  - Other K-2 Math Games
  - Subtraction Flashcards- Lesson 2
  - I have, I want Game- Lesson 10
  - Carrot Game- Lesson 13
  - Animals Hiding on the Farm- Lesson 15
  - Partner Go-Round- Lesson 18

- Anticipated Student Misconceptions: A common mistake is to see two numbers in a word problem and add them, assuming the answer is a total. If students make this mistake, encourage them to reread the problem and draw the problem one chunk at a time. Ask students what the picture shows and what they need to figure out.

- Differentiation Strategies:
  - Use Unifix cubes for support with number bonds and number bond dashes
  - Throughout the module students are learning related addition and subtraction facts. To challenge students when solving problems they can write the two addition and two subtraction number sentences.

- Safety Considerations: N/A

- Prior Knowledge:
  - **Kindergarten** - Students learn to represent *take from* story problems by using objects, drawings, and number sentences. They solve problems such as 5 – 3 = ____ both concretely and pictorially.
  - **Grade 1 Module 1 -** Counting on to find totals provides a foundation for counting on or counting back to find an unknown part. Reasoning about the meaning of the equal sign and determining whether number sentences are true or false helps prepare students to write true number sentences and find unknowns in various equations. Systematic study of partners to 6 through partners to 10 supports understanding subtraction equations as unknown addend problems. While interpreting graphs, students compare categories by using *greater than*, *less than*, and *equal to* language.

- Interdisciplinary Connections:
  - Cover Art- Lesson 17 Launch
    - Study cover art- *Tables for Ladies* by Edward Hopper.
    - Use the grapefruits in the cover art to write a number bond.
  - Math Past- Chinese Counting Rods-
    - Lesson 22- Students relate their comparison problem-solving strategy to an ancient Chinese method for subtraction.
    - The Math Past Resource on page 362 explains how the ancient Chinese used rods to represent numbers and provides an extension lesson.

Unit 3

Name of Unit: Properties of Operations to Make Easier Problems	**Length of unit:** 29 days /70 minutes per meeting

Content Standards Addressed in the Unit:

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.
Students need not use formal terms for these properties.
1.OA.C.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).
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. Understand the following as special cases:
1.NBT.B.2.a10 can be thought of as a bundle of ten ones — called a “ten.”
1.NBT.B.2.b The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
1.NBT.B.2.c The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

Big Ideas:	**Essential Question(s):**
• I can use helpful strategies like counting on, breaking numbers apart, and using math rules to add and subtract quickly. • I can use tens and ones to understand and show numbers in different ways. • I can break numbers apart and put them back together to help solve math problems.	• How can we use ten to make an easier problem? • Did you make 10 with the first or second addend? • Do you need the same number of parts to make the same total? • How does the way we write a number tell you about the tens and ones? • Why do we break up a number into tens and ones to add or subtract?

	● When does it make sense to take from the ones or the tens? ● What strategies can we use to make subtraction problems easier?
Students will know: ● Different strategies to make problems with 3 addends easier ● Different strategies to make addition problems easier such as using a linear model ● That 10 is a unit ● Different strategies to make subtraction problems easier	**Students will be able to:** ● Represent and solve word problems within 20 involving grades K and 1 addition and subtraction problem types. ● Represent word problems by using drawings and a number sentence and solve word problems within 20 involving three addends. ● Add within 20 with equations that have more than two addends. ● Add within 20 by using strategies such as applying the commutative and associative properties to make 10 or by counting on to 10. ● Subtract within 20 by using strategies such as counting on to 10, counting back to 10, or taking from 10. ● Add within 20 by decomposing a teen addend to add the ones first. ● Subtract within 20 by using tens and ones to take from the ones. ● Represent a set of up to 50 objects with a two-digit number by composing tens. ● Represent two-digit numbers within 50 as tens and ones.

Significant tasks:

Significant Task 1: Lessons 1-4 Students add three numbers by making a ten with two addends

Overview of Key Learning

Module 3 transitions students from finding totals by counting on (a Level 2 strategy) to finding totals by making an easier problem (a Level 3 strategy). Topic A begins this work by introducing students to the make ten strategy. Students work with problems that have three addends, two of which are partners to 10. They learn to group these two addends to make ten so that the problem becomes a 10 + *n* fact. This makes the problem easier for students who have mastered their 10 + *n* facts.

Lessons:

Lesson 1- Students group addends that make 10

Lesson 2- Students group addends that make 10 using cubes and pictorial models to solve word problems.

Lesson 3- Students use the make ten strategy to solve *add to with result unknown* word problems. They represent their thinking with drawings

and number sentences.
Lesson 4- Students write three-addend number sentences to represent pattern block puzzles. They discuss and practice grouping strategies for making the problem easier, even when two addends do not make ten.
Lesson Sequence Overview
Lesson 4 Learn Pages
Topic Ticket
Timeline: 5 days

Significant Task 2:
Overview of Key Learning:
In this series of lessons, students explore different strategies for making subtraction problems easier. They can decompose the number being subtracted (subtrahend) or the total (minuend) and use the resulting parts to solve. The students discuss how to subtract from the ones, from the ten, or from both. They use an understanding of ten to guide their decisions and to select any strategy to subtract.
Lessons:
Day 1: Students solve subtraction problems with a result unknown that has a teen number as the total. They share the solution strategies taking from the ten and taking from the ones and the ten. Students apply these two strategies with cubes and explain how they made an easier problem. They contrast the efficiency of these strategies with counting back one by ones to subtract.
Day 2 and 3 : Students focus on the take from ten strategy. They show the total as a ten and some ones, both by drawing 5-groups and by using cubes.
Day 4: Students analyze a drawing of the take from ten strategy to see the part–part–total relationship. Recognizing this relationship helps students connect subtraction to the strategy of counting on to find an unknown part. They use a number path to solve subtraction problems by counting on.
Day 5: Students subtract by breaking the subtrahend into two parts. They count back the first part to get to ten, and then they count back the rest. Students represent their thinking on a number path and with cubes. They learn a way to record their thinking by using numbers and arrows.
Day 6: Students discuss a series of subtraction problems, intentionally selecting strategies for solving each. They take time to make sense of each problem and self-select a subtraction strategy to make the problem easier (take from ten, count on, or count back using ten). Students also self-select tools to show their thinking, such as drawings or number paths.
Day 7: Students watch a video and generate questions about the context, differentiating mathematical questions from non-math ones. Then they solve three real-world word problem types—add to with result unknown, compare, and take from with result unknown—self-selecting strategies and tools to represent and solve them. Students experience and work through productive struggle. After each question type, students share and discuss their work.
Day 7 Performance Task
Lesson Overview
Topic Ticket

Timeline: 6 Days

Common Learning Experiences:

Core Instruction: In module 3, students use the unit of ten to make easier problems by decomposing addends and grouping them in any order. They intuitively apply the associative and commutative properties and then learn how they can use strategies such as counting on, making ten, taking from ten, subtracting to get to a ten, and relating operations to break down larger addition and subtraction problems.

Routines/Models: Math instruction in Stonington uses instructional routines, or predictable patterns of classroom interaction, to allow students and teachers to focus on mathematical content. Routines intentionally support engagement, discussion, and building content knowledge. In this unit grouping addends to make ten, using linear models to represent thinking, reasoning about ten as a unit to add or subtract, and making easier problems to add or subtract are all used in order to enhance student understanding of math concepts and establish routines.

Fluency: Fluency provides distributed practice with previously learned material. It is designed to prepare students for new learning by activating prior knowledge and bridging small learning gaps. Fluency uses routines that promote engagement, require participation from every student, and develop automaticity with counting and calculating. Students become familiar with fluency routines because the routines are used consistently across modules and grade levels, allowing for efficient teaching and learning. Some fluency routines in this module include: Whiteboard Exchange, Show me the Math Way, Say 10 Push-Ups, Happy Counting, 10-Frame Fill Up, 5-Groups, Sprint, Green Light, Red Light, Choral Response, Number Path Hop, Ten and Tuck, Counting on the Rekenerek, Show Me Tens and Ones, Take Away All at Once, Happy Counting,

Key vocabulary:
Addend - Addends are the parts in an addition equation or expression.
Ten - A ten is a unit that is equal to 10 ones. For example, 2 tens is equal to 20.
Unit - Units tell us what we are counting. Some examples of units are ones, tens, blocks, hours, and minutes.

Evidence of Understanding - Common Assessments

- Equip- Modules 2 & 3
- Topic Ticket A
- Topic Ticket B
- Topic Ticket C
- Topic Ticket D

Teacher notes:

- Resources:
  - Level 1 & 2 Implementation Guide
  - Other K-2 Math Games
  - Match- Expressions Lesson 3
  - Make 10 at the Fair- Lesson 8
  - Make Ten Bingo- Lesson 9
  - Floor Number Path- Lesson 13
  - Number Path Hop- Lesson 14
  - Collections for counting and recording- Lesson 15
  - Raceway Addition Game- Lesson 17
  - Raceway Subtraction Game- Lesson 18

- Anticipated Student Misconceptions:

- Differentiation Strategies:
  - Use Unifix cubes in three different colors to represent two and three addend expressions.
  - Use ten frames and counters for visual support with making a ten.
  - Read aloud and act out word problems.

- Safety Considerations: N/A

- Prior Knowledge:
  - **Kindergarten -** students know teen numbers (10 + n) as ten ones and some ones.
  - **Grade 1 Module 1**- Students worked with 10 + n facts and developed fluency with all compositions for totals 5-10. Students use these skills to make ten and take from ten.
  - **Grade 1 Module 2** - Students began to use a Level 3 strategy for making a problem easier: using the relationship between addition and subtraction to subtract. For example, students thought about a related addition fact to solve a subtraction problem. To solve 10 - 6 = ? students think:I know 6 + 4 = 10, so 10 - 6 = 4.

- Interdisciplinary Connections:
  - Math Past
    - Lesson 2- Mayan Numerals
  - Art Connection
    - Lesson 10- *The Migrants Arrived in Great Numbers* by Jacob Lawrence

Unit 4

Name of Unit: Comparison and Composition of Length Measurements	**Length of unit:** 15 days/70 minutes per meeting

Content Standards Addressed in the Unit:

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

- **1.NBT.B.2.a** 10 can be thought of as a bundle of ten ones — called a "ten."
- **1.NBT.B.2.b** The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

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.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.
1.MD.A.2 Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.

Big Ideas:	**Essential Question(s):**
• I can use what I know about length to solve math problems and compare objects. • I can show and understand lengths greater than 10 centimeters by breaking them into tens and ones. • I can measure and compare the lengths of objects by looking at them side by side or using another object to help. • I can put objects in order from shortest to longest. • I can measure objects and write how many whole centimeters long they are.	• What strategies can we use to compare objects and order them by length? • How do we use tools to measure the length of an object? • What are some ways to represent a total length by using tens and ones? • How can we tell how much longer one object is than another? • How do patterns help us figure out the height of the next object without measuring it?

Students will know:	**Students will be able to:**
• How to compare and order objects by length and height • How to compare the length or two objects indirectly • How to measure, compare, and order lengths • That they can use 10-centimeter sticks and centimeter cubes to measure • To draw to represent a total measurement • To represent a total length as units of tens and ones • How to compare to find how much longer or shorter • How to find the unknown longer or shorter length • How to measure to find patterns	• Represent and solve word problems within 20 in grade 1 addition and subtraction comparison problem types involving represented lengths. • Draw or write to represent a length greater than 10 centimeters as tens and ones by using a linear drawing, number bond, or number sentence. • Measure and compare the lengths of two objects. • Order three objects by length by using direct comparison. • Compare the lengths of two objects indirectly by using a third object. • Measure and order the lengths of three or more objects. • Measure the length of an object and write the length as a whole number of centimeters.

Significant tasks:

Significant Task 1: Lessons 1-3 Direct and Indirect Length Comparison
Overview of Key Learning:
In these first three lessons, students begin to learn and understand the components of measurement without using numbers or measuring tools. Students first learn to line up end points of objects to measure and then learn to compare the lengths of two objects that cannot be compared by comparing them to a third object.
Timeline: 3 days
Lessons:
Lesson 1- Students learn the terms *shorter* and *longer* and order a dry erase marker, marker, gluestick, paperclip, and crayon from shortest to longest. Students make comparison statements about the objects.
Lesson 2- Students listen to clues to put a group of owls in order from shortest to longest. Students make comparison statements about the objects.
Lesson 3- Students work with a partner to trace their foot on a paper plate and indirectly compare it to the length of a giraffe's foot. Students make comparison statements about their foot compared to the giraffe's foot.
Topic Ticket

Significant Task 2: Measurement Showcase- Optional invite parents in

Overview of Key Learning:
In this activity, students select items to measure with 10-centimeter sticks and centimeter cubes. They then compare the lengths of the items they measured by ordering them from shortest to longest and writing expressions using the greater than and less than symbols.
Measurement Showcase
Timeline: 1 day, could take 2 days at the end of the unit- one to measure and compare and one day to share items measured and their comparison statement and expressions.

Common Learning Experiences:
Core Instruction: In module 4, students explore units within the context of measurement. After comparing lengths indirectly, students iterate length units, such as centimeter cubes and 10-centimeter sticks, to describe and compare lengths.

Routines/Models: Math instruction in Stonington uses instructional routines, or predictable patterns of classroom interaction, to allow students and teachers to focus on mathematical content. Routines intentionally support engagement, discussion, and building content knowledge. In this module, students measure using a standard metric length unit: centimeters. They use both centimeter cubes and 10-centimeter sticks. This provides meaningful and concrete experiences for students to count by using tens and ones.

Fluency: Fluency provides distributed practice with previously learned material. It is designed to prepare students for new learning by activating prior knowledge and bridging small learning gaps. Fluency uses routines that promote engagement, require participation from every student, and develop automaticity with counting and calculating. Students become familiar with fluency routines because the routines are used consistently across modules and grade levels, allowing for efficient teaching and learning. Some fluency routines in this module include: Choral Response, Happy Counting, Show Me, Sprint, Build and Compare, Number Path Hop, Counting on the Rekenrek, Whiteboard Exchange, Take Away All at Once, Take Away All at Once, and Make 10 with Hands.

Key vocabulary:
length - Length is the space between the endpoints of an object; when we measure up and down, we sometimes call it height.
measure - To measure is to use a tool to find out how long or tall something is.

Evidence of Understanding - Common Assessments
- Equip Modules 4 & 5
- Topic Ticket A
- Topic Ticket B
- Module 4 Assessment

Teacher notes:

- Resources:
  - Level 1 & 2 Implementation Guide
  - Build and Compare: Length and Height Lesson 4

- Anticipated Student Misconceptions:
  - Young children commonly reverse symbols <,> and may benefit from a concrete experience with them. Consider supporting students by creating a model.
    - Use centimeter cubes to measure two objects, such as a glue stick and a small paper clip.
    - Create a visual comparison symbol by using a straightedge to make diagonal lines that connect the endpoints of both objects.
    - Help students notice that the longer or taller object is in the open or wide part of the symbol both times.
    - Write the corresponding number sentence to reinforce the relationship.

- Differentiation Strategies:
  - Some students find it difficult to order, or seriate, more than three objects. They may order sets of two or three objects, but have difficulty combining the sets in a final accurate order. If needed, model an organized strategy like this one: Lay out all of the items. Pick up the last item and compare it to each item in line starting at the first object. If it is shorter, place it to the left, if it is longer, place it to the right. Repeat the process until all of the objects are in order.
  - Three Addends Sprint- If students need support with this task, encourage them to circle the two addends that make ten before adding the third addend.
  - Ask students to estimate the length of an item before they measure it. They can use the cubes to see how their estimate compares to the measured length.
  - Tracing Hands: Offer an alternate method of measuring if tracing presents a fine motor skills challenge for students. Print two or three student-size hands for students to measure. Providing students with this support minimizes the fine motor demands of the task and allows students to focus on measurement behaviors.
  - Unknown addend sprint: If students need support to find the unknown addend, invite them to draw dots or tallies in the blanks to track their counting.
  - In Lesson12 the Problem Set provides directions and space for the problems to be represented in two formats: with sticks and cubes, as well as with a drawing. Provide students with materials and encourage them to take advantage of the opportunity to show the problem in both ways.
  - To increase/decrease the challenge and sustain engagement, consider presenting items to measure with larger/smaller lengths.

- Safety Considerations: N/A

- Prior Knowledge:

- **Kindergarten -**Students identified height and length as measurable attributes. They directly compared the length of two objects by aligning the endpoints, and used terms such as taller, longer, and shorter to describe the relationship between them. They informally explored the relationship of number and unit size to length.
- **Grade 1 Module 2 -**Students drew pictures to solve *comparison with difference unknown* word problems. They answered the question *How many more?* rather than *How much longer or shorter?*
- **Grade 1 Module 3 -**Students prepared for measuring lengths with 10-centimeter sticks and cubes by representing concrete and pictorial quantities as tens and ones using unit form, number bonds, and number sentences.

- Interdisciplinary Connections:
  - Arts - Instruments from around the world -A South American panpipe, a marimba, Melanesian bamboo panpipe all use varied lengths of pipes to produce various notes. Students observe instruments and compare: How are they the same? How are they different?
  - Science -
    - K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
    - 1- ESS1-1. Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.

Unit 5

Name of Unit: Place Value Concepts to Compare, Add, and Subtract	**Length of unit:** 25 classes/ 70 minutes per meeting)

Content Standards Addressed in the Unit:

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.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. Understand the following as special cases:

- **1.NBT.B.2.a** 10 can be thought of as a bundle of ten ones — called a “ten.”
- **1.NBT.B.2.b** The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
- **1.NBT.B.2.c** The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

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 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.MD.B.3 Tell and write time in hours and half-hours using analog and digital clocks.

Big Ideas:	**Essential Question(s):**
● I can make big numbers by putting together groups of tens and ones. ● I can use the digits in a number to know how many tens and ones it has. ● I can use the symbols >, <, and = and what I know about tens and ones to compare numbers quickly. ● I can use tools like cubes, drawings, number bonds, and number paths to show my thinking and solve problems. ● I can add a small number to a bigger number by breaking it into tens and ones to make adding easier. ● When I add tens to a number, the tens digit changes, but the ones digit stays the same. ● I can read and tell time to the hour and half hour on both analog and digital clocks.	● What is the value of each digit in a two-digit number? ● How can we represent the same number in different ways using tens and ones? ● How can we compare two totals? ● Why can it be helpful to break up a number into tens and ones to add it to another number? ● What are some ways to add tens or take away tens? ● How can facts we know help us add and subtract multiples of ten? ● What strategies can we use to find an unknown part? ● What happens to the digits when you add tens to a number? ● How does looking at the digits in the tens and ones places help you to add? ● How does breaking up two-digit addends into tens and ones help us to add? ● What are some strategies we can use to make addition and subtraction problems easier?
Students will know:	**Students will be able to:**
● smaller units, such as ones, compose larger units, such as tens. ● two-digit numbers represent amounts of tens and ones	● Determine whether addition and/or subtraction number sentences are true or false. ● Represent a set of up to 99 objects with a two-digit number by

• the digits used to write a numeral, such as 2 and 1 in 21, show how many tens and ones there are when the number is expressed in its "most composed" form. • the symbols >, =, or < and the place value of numbers help compare number efficiently • they can use a variety of models such as cubes, drawings, number bonds, and number paths to represent, solve, and explain their strategies. • how to add a one-digit number to a two-digit number by using place value to make easier problems. • adding tens to a two-digit number causes the digit in the tens place to change, but the digit in the ones place remains the same. • How to add a two-digit number to a two-digit number	composing tens. • Represent two-digit numbers within 99 as tens and ones. • Determine the values represented by the digits of a two-digit number. • Compare two-digit numbers by using the symbols >, =, and <. • Add or subtract multiples of 10. • Add a two-digit number and a multiple of 10 that have a sum within 100. • Add a two-digit number and a one-digit number that have a sum within 50, relate the strategy used to a written method, and explain the reasoning used. Use concrete models, drawings, strategies based on place value, and/or properties of operations. • Add 2 two-digit numbers that have a sum within 50, relate the strategy used to a written method, and explain the reasoning used. Use concrete models, drawings, strategies based on place value, and/or properties of operations. • Mentally find 10 more or 10 less than a two-digit number. • Tell time to the hour and half hour on analog and digital clocks.

Significant tasks:

Significant Task 1: Determining which equations make the next ten - Lessons 10-14

Overview of Key Learning:

Students apply their knowledge of place value to add a one-digit number to a two-digit number. Students identify which problems do not compose a new ten, which problems do compose a new ten, and which problems compose a new ten and have extra ones.

Lessons:

Day 1- Students draw models and write number sentences to add the one-digit addend to the digit in the ones place. The sums do not exceed 9.

Day 2- Students look at the Rekenerek to determine how many more ones are needed to make the next ten and identify patterns.

Day 3- Students use drawings or number bonds to decompose an addend to make the next 10.

Day 4- Students use a number path to find totals using the make the next ten strategy. They look for patterns in a string of related problems.

Day 5- Students use repeated reasoning to recognize when they can make the next ten in a series of addition expressions. Students sort the expressions into *does not make 10, makes next 10, or makes next 10 and extra ones.*

Expressions Sorting

Topic Ticket

Timeline: 5 lessons

Significant Task 2: Addition of 2 digit numbers - Lesson 21-25

Overview of Key Learning:

The goal of this significant task is to build number sense that allows students to flexibly manipulate two digit addends. Students use their place value understanding to make problems easier. They use a variety of concrete, pictorial, and abstract tools to model addends as tens and ones. Students record their reasoning by using a written method and then explain their strategy.

Lessons:

Day 1 - Students self-select ways to combine groups of cubes that represent 2 two-digit numbers. They share how they decomposed each group and combined the resulting parts

Day 2 - Students practice strategy 1 - **Add like units**: Decompose both addends into tens and ones, combine tens with tens and ones with ones, and then put tens and ones together.

Day 3 - Students practice strategy 2 - **Add tens first**: Decompose one addend into tens and ones, combine the tens with the other addend, and then add the ones.

Day 4 - Students practice strategy 3 -**Make the next ten**: Decompose one addend into tens and ones, combine some (or all) of the ones with the other addend (in many cases to make the next ten), and then add the remaining parts.

Day 5 - Students compare equivalent expressions used to solve two-digit addition equations. The class works together to make an anchor chart for students to refer to as they practice adding two-digit numbers in the future. They play a culminating game called "Total Capture" where they use the three strategies modeled during this significant task to play a partner game.

Timeline: 5 class periods

Common Learning Experiences:

Core Instruction: In module 5, students develop an understanding of the base ten system. They continue to advance their use of tens and ones as they compose and compare numbers. Students then make easier problems to add and subtract within 100.

Fluency: Fluency provides distributed practice with previously learned material. It is designed to prepare students for new learning by activating prior knowledge and bridging small learning gaps. Fluency uses routines that promote engagement, require participation from every student, and develop automaticity with counting and calculating. Students become familiar with fluency routines because the routines are used consistently across modules and grade levels, allowing for efficient teaching and learning. Some fluency routines in this module include: White Board Exchange, Counting on the Rekenrek, Choral Response, Match, Beep counting, and 5 Groups. These routines are used in this module to build fluency and skills in telling time, recognizing and counting pennies and dimes, relating subtraction to addition, adding and subtracting 10, subtracting within 20, and comparing numbers.

Routines/Models: Math instruction in Stonington uses instructional routines, or predictable patterns of classroom interaction, to allow students and teachers to focus on mathematical content. Routines intentionally support engagement, discussion, and building content knowledge. In this module, students compare two-digit numbers by using the place value structure of tens and ones. They represent comparisons with number

sentences that include the symbols >, =, or <. In this unit students learn to use strategies for addition and subtraction flexibly. One concept unifies the many ways to add two-digit numbers: make an equivalent yet easier problem. Break the addends into parts and combine the parts in ways that make sense. This unit exposes students to more than one way to make an easier problem increases number sense, encourages flexibility, and provides choice. Students also select different tools or models, such as manipulatives, drawings, number paths, number bonds, and number sentences. Students begin to use quick tens and use pennies and dimes as models for the problems they are solving. The Rekenrek is used to count up and back by multiples of 10 from any number.

Key vocabulary:

digit- Numbers like 7 and 5 are called digits. When we write digits next to each other, we make another number. For example, we write the digits 7 and 5 next to each other to make 75. (Lesson 2)

compose- To compose means to be put together, or group. (Lesson 3)

place - A digit's place is its position in a number. Numbers with two digits have two places: the tens place and the ones place. (Lesson 3)

value - Value is how much something is worth. For example, in the number 53, the 5 is in the tens place, so it has a value of 50. (Lesson 3)

Evidence of Understanding - Common Assessments

- Equip Modules 4 & 5
- Informal classroom observations (recording sheet provided in the module resources)
- Data from other lesson-embedded formative assessments
- Exit Tickets
- Topic Tickets- A, B, C, D
- Module Assessment

Teacher notes:

- Resources:
  - Level 1 & 2 Implementation Guide
  - Other K-2 Math Games
  - Match: Place Value- Lesson 5
  - Roll and Compare- Lesson 8
  - Match: Subtraction Expressions- Lesson 9 and Lesson 17
  - Raceway Addition Game- Lesson 10
  - Numbers Up! Lesson 16
  - Match: Addition and Subtraction Expressions- Lesson 18

- Anticipated Student Misconceptions:
  - Student confuse hour and minute hand on the analog clock. Indicate the minute hand in red to model the difference.
  - <,>: Help students recall that the open part of the comparison symbol faces the larger number and the pointy part of the symbol faces the smaller number. Consider having students draw and label all the symbols on their whiteboard as a reference.

- Some students will have difficulty working with a dime as it represents 10. Provide students with manipulatives they can use to represent the values of the dimes and pennies. Consider having students use Unifix cubes to represent dimes by stacking 10 cubes.

- Differentiation Strategies:
  - If needed, provide additional support for students with telling time to the half hour.
  - To increase/decrease the challenge and sustain engagement, consider presenting problems with larger/smaller numbers.
  - Introducing Quick Tens - Instead of using ten-sticks and cubes, have students draw lines (also called quick tens) and dots to represent the amounts and find 10 more and 10 less.
  - Dimes and Pennies - Rather than using dimes and pennies, have students draw circles labeled with 10 and 1 to represent the amounts.
  - Students may also benefit from making the next ten concretely by using Unifix Cubes
  - Provide access to a Number Path to 120 to support students in using strategies taught in Topics C and D.
  - Game - "Make 50": Adjust the level of difficulty by strategically removing pairs of cards from the set. For example, consider removing 23 and 27, 24 and 26, or 32 and 18.
  - Game - "Total Capture": Adjust the level of difficulty by cutting the gameboard. Have students use only the top two rows. Problems in the first two rows use simpler addends.
  - Have students consider a second and third strategy to solve addition and subtraction problems. Instruct students to use their whiteboard to show the strategy they chose and share the strategy with a partner.

- Safety Considerations: N/A

- Prior Knowledge:
  - **Kindergarten Module 6 -** Students begin to develop place value understanding when they come to see that teen numbers are composed of 10 ones and some more ones. They do not formalize the notion of "a ten" as a unit. Students also count to 100 by tens and by ones.
  - **Grade 1 Module 3 -** Students rename groups of ten ones as units of ten. They come to see that all two-digit numbers are composed of tens and ones.
  - **Grade 1 Module 4 -** Students use 10-centimeter sticks (tens) and centimeter cubes (ones) to measure lengths. They state total lengths in terms of tens and ones.

- Interdisciplinary Connections:
  - ELA - Literature Connection- The picture book *Let's Count to 100!* by Masayuki Sebe may complement lesson 20. It features 100 unique objects that invite children to search and count. Masayuki Sebe has authored many books featuring 100. Students may also enjoy *100 People*, *100 Things*, *100 Animals on Parade*, and *100 Hungry Monkeys*.
  - History- Math Past - Yoruba Counting Words - Students explore the questions: Where do number words come from? Do other people use different words to represent numbers? What do other people's number words mean?

Unit 6

Name of Unit: Attributes of Shapes & Advancing Place Value, Addition, and Subtraction	**Length of unit:** 33 days

Content Standards Addressed in the Unit:

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.
K.CC.A.1 Count to 100 by ones and by tens.
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.
K.OA.A.4 For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.
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 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.MD.B.3 Tell and write time in hours and half-hours using analog and digital clocks.
K.G.A.2 Correctly name shapes regardless of their orientations or overall size.
K.G.B.4 Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).
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.
Students do not need to learn formal names such as "right rectangular prism."
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.

Big Ideas:	**Essential Question(s):**
● I can name and describe 2D shapes like triangles, squares, rectangles, and hexagons by their special features. ● I can name and describe 3D or solid shapes like cubes, cones, and pyramids by looking at their faces. ● I can build bigger shapes by putting smaller shapes together and break shapes apart to see the parts. ● I know that equal parts are the same size and shape. ● I can divide circles and rectangles into halves and fourths and name the parts. ● I know that "half past" means 30 minutes after the hour, like 2:30 on a clock. ● I can read and write numbers greater than 100. ● I can add two two-digit numbers and find sums within 100.	● What can we notice about a shape to help us name it? ● What are some ways to describe a solid shape? ● How can smaller shapes be used to compose a larger shape? ● How do you know if a shape is composed of equal parts? ● How do you know if something is partitioned into halves or fourths? ● What does it mean if the time is half past the hour? ● What helps us read and write numbers that are greater than 100? ● Why is a tape diagram helpful for solving problems? ● What are ways to make an easier problem? ● What are some strategies we can use to get to 100 from any number?
Students will know:	**Students will be able to:**
● The names of 2-dimensional shapes, including triangles, rectangles, squares, rhombuses, trapezoids, and hexagons ● Two-dimensional flat shapes can be named and described by using defining attributes ● The names of three-dimensional solid shapes, including cubes, cones, cylinders, rectangular prisms, triangular prisms, and pyramids. ● The faces of three-dimensional solid shapes describe the solid shapes it will become. ● The part–whole relationships when composing and decomposing shapes. ● Equal parts (or shares) are the same shape and size ● How to decompose circles and rectangles into 2 and 4 equal parts and name the shares as halves, fourths, and quarters. ● On an analog clock half past can also be stated as 2:30,	● Name and identify shapes regardless of their orientation or overall size. ● Analyze and describe two- and three-dimensional shapes, in different sizes and orientations, by using informal language to describe them (e.g., number of sides and corners or having sides of equal length). ● Find the partner to 10 for any number 1–9. ● Count to 100 by ones and tens. ● Add a two-digit number and a multiple of 10 that have a sum within 100. ● Mentally find 10 more or 10 less than a two-digit number. ● Tell time to the half hour, including using the term *half past*. ● Identify the defining attributes of two-dimensional shapes and three-dimensional shapes. ● Draw two-dimensional shapes that have certain defining

because the minute hand has gone halfway around the clock. ● Read and write numbers greater than 100 ● Add 2 two-digit numbers that have sums within 100	attributes. ● Compose two-dimensional and three-dimensional shapes to create a composite shape. ● Partition circles and rectangles into 2 or 4 equal shares and describe the shares by using the words *halves*, *fourths*, or *quarters*. ● Draw or write to show that decomposing the same whole into more equal shares creates smaller shares. ● Represent and solve word problems within 20 involving all addition and subtraction problem types by using drawings and an equation with a symbol for the unknown. ● Represent a set of up to 120 objects with a written numeral by composing tens. ● Represent three-digit numbers within 120 as tens and ones. ● Write missing numbers in a sequence within 120. ● Add a two-digit number and a one-digit number that have a sum within 100, relate the strategy used to a written method, and explain the reasoning used. Use concrete models, drawings, strategies based on place value, and/or properties of operations. ● Add 2 two-digit numbers that have a sum within 100, relate the strategy used to a written method, and explain the reasoning used. Use concrete models, drawings, strategies based on place value, and/or properties of operations.

Significant tasks:

Significant Task 1: Design a Room Floor Plan - Lessons 1-3
Overview of Key Learning: Students start learning about, identifying, and naming shapes based on their attributes. Students then use what they know about shapes to draw different shapes and create a floor plan.
Lessons:
Day 1- Students count the number of sides on shapes and sort them into four categories: triangle, quadrilaterals, pentagons, and hexagons.
Day 2- Students identify attributes of quadrilaterals and notice if shapes have parallel sides or square corners. Students use popsicle sticks to identify parallel sides and centimeter cubes to identify square corners.
Day 3- Students analyze shapes used in a floor plan. They use dots, cubes, and a straightedge to draw shapes using dots and design their own

floor plan.
Shape Drawing
Floor Plan Dot Paper
Timeline: 3 days

Significant Task 2: Creating Composite Shapes Lessons 6-9
Overview of Key Learning:
Students decompose and compose flat and solid shapes in increasingly complex ways. First they identify shapes within a composite shape, then they name composite shapes by identifying their attributes, and finally they create composite shapes by combining shapes.
Lessons:
Day 1- Students look for 2-D and 3-D shapes in composite shapes.
Day 2- Students look for patterns in a series of composite shapes.
Day 3- Students find smaller shapes within a larger composite shape. Students use 2 triangles and then 4 triangles to make different composed shapes.
Day 4- Students use pattern blocks to test different ways to compose a shape. Teachers record each composition and students learn that the smaller the shape, the more of that shape is needed to compose a new shape.
Composite Shape Outline- triangle
Composite Shape Outline- hexagon
Timeline: 4 days

Common Learning Experiences:

Core Instruction: In module 6 part 1 students reason about shapes and their attributes. They compose and decompose shapes, building an understanding of part–whole relationships, including fractions. In part 2, students advance place value understanding through 120, add within 100, and solve more complex word problem types.

Routines/Models: Math instruction in Stonington uses instructional routines, or predictable patterns of classroom interaction, to allow students and teachers to focus on mathematical content. Routines intentionally support engagement, discussion, and building content knowledge. In this unit are all used in order to enhance student understanding of math concepts and establish routines. In Topic A student explore paper shapes to describe and name two-dimensional shapes. They look at the faces of three dimensional shapes in unfolded nets to describe the solid shapes the nets will become. In Topic B students use pattern blocks and other concrete shapes to explore geometry and fractions. In Topic C, they transition to using their knowledge of circles to telling time on an analog clock using the classroom clock, a demonstration clock and the digital time. In Topic D, students work with three-digit numbers from 100 to 120 in the following ways: counting, reading numerals, writing totals, and representing numbers students. They use number bonds, quick tens, and missing number grids to practice these skills. In Topic E, students use tape diagrams to solve addition and subtraction word problems. In Topic F, students add 2 two-digit numbers that have sums within 100. They use models such as ten-sticks and cubes, drawings, and number bonds.

Fluency: Fluency provides distributed practice with previously learned material. It is designed to prepare students for new learning by activating prior knowledge and bridging small learning gaps. Fluency uses routines that promote engagement, require participation from every student, and develop automaticity with counting and calculating. Students become familiar with fluency routines because the routines are used consistently across modules and grade levels, allowing for efficient teaching and learning. Some fluency routines in this module include: sprints to practice 7, 8, 9 as an addend; happy counting to practice counting 110-120; Choral Response to practice shapes, attributes, fractions, measurement, equal/not equal, and telling time; Green light/red light for counting beyond 100; white board exchange to practice equal shares, adding within 100, quick tens, and unknown addend.

Vocabulary:

composed shape: A composed shape is a shape that is made up of other shapes. For example, a rhombus made with two green triangle blocks is a composed shape.
fourth/fourths/fourth of: A fourth is one of 4 equal parts. A shape that is partitioned into 4 equal parts is partitioned into fourths. One of 4 equal parts of a shape is 1 fourth of that shape.
half/halves/half of: A half is one of 2 equal parts. A shape that is partitioned into 2 equal parts is partitioned into halves. One of 2 equal parts of a shape is 1 half of that shape.
half past: The phrase half past is used to tell the time when the minute hand is halfway around the clock. Half past two is the same time as 2:30.
parallel: Two sides that are across from each other and never touch, even when we imagine them going far out past the shape, are parallel.
partition: When we cut or break something into parts, we partition it. For example, we can partition a shape into halves.
quarter/quarter of: Quarter is another word for fourth. Quarter of and fourth of mean the same thing.
rhombus: A rhombus is a closed shape with 4 straight sides that are all the same length.
square corner: If a square fits perfectly in a shape's corner, then that corner is called a square corner.
trapezoid: A trapezoid is a closed shape with 4 straight sides. At least 2 of the sides are parallel.

Evidence of Understanding - Common Assessments

- Equip Module 6
- Topic Ticket A
- Topic Ticket B
- Topic Ticket C
- Module Assessment Part 1
- Topic Ticket D
- Topic Ticket E
- Module 6 Assessment Part 2

Teacher notes:

- Resources:
  - Level 1 & 2 Implementation Guide
  - Other K-2 Math Games
  - Hidden Addends- Lesson 8 and 9
  - Closest to 100- lesson 18
  - Carnival Game- Lesson 28
  - Hop to 100 Game- Lesson 30
  - Match- Make 100 - Lesson 31

- Anticipated Student Misconceptions:
  - A common misconception is that all hexagons are regular and have equal sides and angles. Hexagons can take many forms, including those that are concave with points (or corners) that point inward.
  - Students may have difficulty discerning between flat and solid shapes in the pictures. Consider supporting students by providing actual objects that are similar to the objects in the pictures.

- Differentiation Strategies:
  - If students have difficulty counting the sides of the composed shape, provide pattern blocks. Invite students to build the shape and touch and count the sides.
  - Lesson 13 - Color-coding is a critical feature of fractional representations. Keeping Azeez's slice of pizza blue throughout the lesson helps students see the relationship between the number of pieces the whole is cut into and the size of the pieces.
  - Write numbers to 120 - Support students to help them understand the vertical organization of the chart. If students read the numbers horizontally, encourage them to think about whether that count sequence is correct. For example, after 91 comes 92, not 101. Provide visual support by drawing a heart at the bottom of the first column and a star at the top of the second column. Tell students to follow their heart and reach for the star.
  - Tape diagrams for problem solving - Support students with drawing their tape diagram by having them make it with cubes first. They should use different colors of cubes to represent each part. They can lay the cube stick on their whiteboard and label it as shown.

- Safety Considerations: N/A

- Prior Knowledge:
  - **Grade K Module 2 -** Students identify, name, and describe squares, rectangles, and triangles by using defining attributes such as the number of closed, straight sides and the number of corners. They are exposed to trapezoids and rhombuses. They also describe the faces of solid shapes and discuss functionality. However, triangular prisms are new to grade 1. In kindergarten, students construct solid and flat shapes by using sticks, and they draw flat shapes by using a straightedge and dot paper. Students compose two-dimensional and three-dimensional shapes and identify the smaller shapes used in the compositions.

- Interdisciplinary Connections:
    - ELA - *The Greedy Triangle by Marilyn Burns* connects well with the concept presented in this lesson, which is that shapes are named according to the number of sides they have. The book also shows shapes in the real world. Consider using the book as a read-aloud before or after this lesson. Students may sketch the shapes as they are presented in the book or build them with craft sticks
    - Art - *The Card Players* by Theo van Doesburg - Engage students in student-to-student discourse about how the artist uses composed shapes in his art. *The Watermelons* by Diego Rivera.- Engage students in student-to-student discourse about whether they think that the watermelons are cut into equal shares? Why?