

Course Title: Mathematics	Full Year	Required
<p>Course Description: The big ideas in grade 2 include: extending understanding of the base-ten number system, building fluency with addition and subtraction, using standard units of measure, and describing and analyzing shapes. The mathematical work for grade 2 is partitioned into 9 units:</p> <ol style="list-style-type: none"> 1. Adding, Subtracting, and Working with Data 2. Adding and Subtracting within 100 3. Measuring Length 4. Addition and Subtraction on the Number Line 5. Numbers to 1,000 6. Geometry, Time, and Money 7. Adding and Subtracting within 1,000 8. Equal Groups 9. Putting it All Together <p>In these materials, particularly in units that focus on addition and subtraction, teachers will find terms that refer to problem types, such as Add To, Take From, Put Together or Take Apart, Compare, Result Unknown, and so on. These problem types are based on common addition and subtraction situations, as outlined in Table 1 of the Mathematics Glossary section of the Common Core State Standards.</p>		
<p>Additional Course Information:</p> <p>The big ideas in Grade 2 include:</p> <ul style="list-style-type: none"> ● Representing and solving problems involving addition and subtraction ● Adding and subtracting within 20 ● Understanding place value ● Using place value understanding and properties of operations to add and subtract ● Measuring and estimating lengths in standard units ● Relating addition and subtraction to length <p>Required fluency in grade 2 includes:</p> <ul style="list-style-type: none"> ● Single-digit sums and differences (sums from memory by end of Grade 2) ● Add/subtract within 100 	<p>Core Resources:</p> <p>Illustrative Mathematics</p> <p>Instructional Routines and Math Language Routines</p> <p>Glossary - Student-friendly</p> <p>Required Materials</p> <p>IM en Español:</p> <p>Developing a Mathematical Community</p>	<p>Are there any attachments <u>at the course level</u> that teachers will need?</p> <p>Scope and Sequence This document should be reviewed at the start of the year and each unit for information on language routines, expectations, and possible misconceptions.</p> <p>Pacing Guide and Dependency Diagrams K-5</p>

Unit 2: Adding and Subtracting Within 100

Duration: 17-18 days

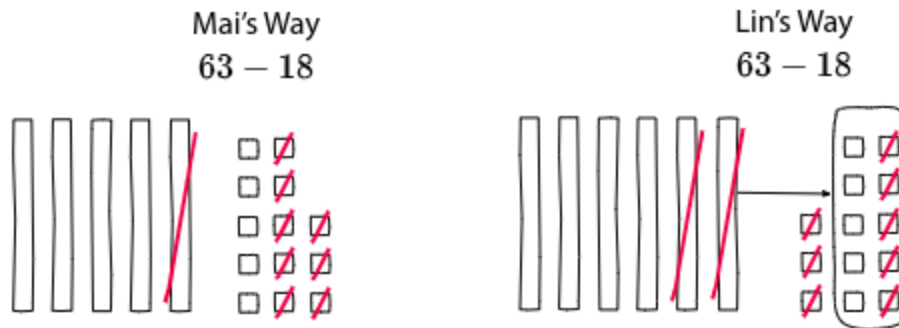
Unit Overview - FOCUS:

Previously, students added and subtracted numbers within 100 using strategies they learned in grade 1, such as counting on and counting back, and with the support of tools such as connecting cubes. In this unit, they add and subtract within 100 using strategies based on place value, the properties of operations, and the relationship between addition and subtraction.

Students begin by using any strategy to find the value of sums and differences that do not involve composing or decomposing a ten. They are then introduced to base-ten blocks as a tool to represent addition and subtraction and move towards strategies that involve composing and decomposing tens.

Students develop their understanding of grouping by place value, and begin to subtract one- and two-digit numbers from two-digit numbers by decomposing a ten as needed. They apply properties of operations and practice reasoning flexibly as they arrange numbers to facilitate addition or subtraction.

For example, students compare Mai and Lin's methods for finding the value of $63 - 18$.



At the end of the unit, students apply their knowledge of addition and subtraction within 100 to solve one- and two-step story problems of all types, with unknowns in all positions. To support them in reasoning about place value when adding and subtracting, students may choose to use connecting cubes, base-ten blocks, tape diagrams, and other representations learned in earlier units and grades.

Topic Titles:

● Section A: Add and Subtract

- Add and subtract within 100 using strategies based on place value and the relationship between addition and subtraction. Problems in this section are limited to the problems like $65 - 23$, where decomposing a ten is not required.

● Section B: Decompose to Subtract

- Subtract within 100 using strategies based on place value, including decomposing a ten, and the properties of operations.

● Section C: Represent and Solve Story Problems

- Represent and solve one- and two-step problems involving addition and subtraction within 100, including different problem types with unknowns in all positions.

Coherence: How does this unit build on and connect to prior knowledge and learning?

Previously, students added and subtracted numbers within 100 using strategies they learned in grade 1, such as counting on and counting back, with the support of tools such as connecting cubes. Students have added and subtracted multiples of ten from other two-digit numbers within 100. In previous grades, students solved a variety of Add To, Take From, Put Together/Take Apart, and Compare problems. In the previous unit, students learned how to use tape diagrams as a tool to make sense of, determine the unknown, and solve story problems. In grade 1, students added within 100 using strategies based on place value and properties of operations. When using place value strategies to add, students learned that sometimes they need to compose a ten. To this point, when subtracting within 20, students used methods like counting on, decomposing a number to get to a ten, and using known addition facts, but did not explicitly decompose a ten. In grade 1, students learn that the two digits of a two-digit number represent amounts of tens and ones.

Essential Questions:

1. How can place value be helpful in adding and/or subtracting multi digit numbers?
2. How can we make our thinking visible when adding and subtracting multi-digit numbers?
3. How do you represent and solve addition and subtraction story problems?

Enduring Understanding:

- **There are a variety of ways to add or subtract multi-digit numbers.** We can use what we know about place value to help make adding and subtracting more accurate and efficient. Sometimes, numbers may need to be composed or decomposed in order to see relationships between numbers. Sums and differences can be found using base-ten blocks and base-ten diagrams, which support our place value understanding.
- **Making our thinking visible when adding and subtracting multi-digit numbers can help us stay organized and be more accurate, effective, and efficient.** We can use base-ten blocks and base-ten diagrams to make our thinking visible alongside our equations when adding and subtracting two-digit numbers. We can also use tape diagrams to represent the problem and show the unknown.
- **Representing story problems helps us to recognize how different pieces of information connect to one another.** We can identify different types of story problems - Add To, Take From, Put Together, Take Apart, Compare, and Result Unknown to make sense of problems and help determine whether we will add or subtract. We can also determine the unknown in a problem. Unknowns can be used in all positions. We can use tape diagrams to represent the problem and show the unknown.

What Students Will Know: This should be based on the competencies.

- When counting by tens forward and

What students will do: This should be based on the competencies.

- Mentally add 10 to a given number within 100

Unit Specific Vocabulary:

Three-Reads routine
Abstract
Quantitatively

<p>backwards off the decuple the ones place stays the same and the tens place changes (97, 87, 77, 67, 57, 47. . .)</p> <ul style="list-style-type: none"> ● How to represent and read two-digit numbers using place value blocks and base-ten diagrams ● The value of the tens and ones digits ● The Three-Reads routine is a way to make sense of story problems. ● We can decompose numbers in multiple ways. ● How to use base-ten blocks to make their thinking visible when subtracting. ● When it is effective to count back to subtract and when it is more efficient to decompose a ten to subtract. ● When there are not enough ones to subtract by place, you can decompose 1 ten for 10 ones. ● The value of an expression doesn't change when the total number of tens and ones stays the same (for example, $26 = 20 + 6 = 10 + 16$). ● There are multiple methods for subtracting . ● Story problems can be connected to diagrams. ● Symbols can represent an unknown number. ● Equations can represent story problems ● Tape diagrams can be used to visualize a story problem and find the unknown number. ● The relationship between addition and subtraction. ● Different types of story problems (Add 	<ul style="list-style-type: none"> ● Solve compare problems using visuals and/or equations ● Find the unknown addend ● Add and subtract within 100 without composing or decomposing a ten using methods based on place value and the relationship between addition and subtraction ● Make sense of story problems ● Describe how they used place value understanding to add and subtract within 100 ● Recognize comparison situations ● Subtract a one-digit number from a two-digit number ● Justify how methods are the same and how they are different with an emphasis on describing how tens are subtracted from tens and ones from ones ● Add and subtract within 100, including composing and decomposing a ten, using strategies based on place value and the properties of operations ● Subtract a two-digit number from a two-digit number and showing this with base-ten blocks, base-ten diagrams and expressions/equations ● Use place value and the properties of operations to find the value of an expression mentally ● Solve one-step story problems within 100 ● Use tape diagrams and equations to represent different types of story problems within 100 ● Interpret story problems and use diagrams and equations to represent the unknown quantities. ● Represent and solve two-step story problems within 100 ● Use representations to make sense of 	<p>Inventory In stock</p> <p>Academic vocabulary Compose Decompose Addend Representation Unknown value Method Difference Compare Difference unknown Tape Diagram Put together Take apart Symbol</p>
--	--	--

<p>to, Take From, Put Together, Take Apart, Compare, Result Unknown).</p>	<p>problems, support their calculations, and explain their thinking.</p> <ul style="list-style-type: none"> ● Add up to 4 two-digit numbers using strategies based on place value and properties of operations 	
<p>Entry Level Assessment and Connection to Unit:</p> <p>Section A Pre-Unit Practice Problems Section B Pre-Unit Practice Problems Section C Pre-Unit Practice Problems</p>	<p>Unit Materials, Resources and Technology:</p> <ul style="list-style-type: none"> ● Illustrative Mathematics ● Instructional Routines and Math Language Routines ● Glossary - Student-friendly ● Required Materials ● IM en Español ● Pacing Guide and Dependency Diagrams K-5 	
<p>Opportunities for Interdisciplinary Connections:</p> <p>Story problems in mathematics connect to stories in Reading/Language Arts through finding the problem in the story and looking at how it is solved or can be solved by the characters.</p>		
<p>Any links, attachments and resources:</p> <p>Instructional Routines Document</p> <p>Family Support Materials</p>	<p>Planning Ideas:</p> <p>Components of a Typical IM Lesson</p> <p>What To Know About IM When Planning</p> <p>Where to Find the Mathematical Practices in the Units</p> <p>Assessing the Mathematical Practices</p>	

Topic # 1 (Section A)	Topic Name: Section A - Add and Subtract	Duration: Recommended: 4 days (4 lessons)
------------------------------	---	---

Topic Description:
In this section, students find the value of unknown addends using methods that are based on place value and are introduced to base-ten blocks. They continue to rely on the relationship between addition and subtraction to solve problems involving differences.

Students begin by solving Compare story problems. They use any methods and tools that make sense to them—including diagrams and connecting cubes—to find differences of two-digit numbers.

Lin and Clare used cubes to make trains.
What do you notice? What do you wonder?



Students then analyze the structure of base-ten blocks and use them to find unknown addends (MP7). Unlike connecting cubes, base-ten blocks cannot be pulled apart, which helps emphasize the structure of two-digit numbers in base ten.

To reason about an unknown addend, they may add tens and ones to the known addend until they reach the value of the sum. They may also start with the total amount and subtract tens from tens and ones from ones to reach the known addend. The numbers encountered here do not require students to decompose a ten when they subtract by place value.

Section Learning Goals

- Add and subtract within 100 using strategies based on place value and the relationship between addition and subtraction. Problems in this section are limited to the problems like $65 - 23$, where decomposing a ten is not required.

<p>Competencies Addressed:</p> <p>Understanding and Applying Number Systems 2.NS.2 I can count, read, and write whole numbers. (2.NBT.A.2-3) 2.NS.4 I can use my understanding of place value and properties of operations to add. (2.NBT.B.5-9) 2.NS.5 I can use my understanding of place value to subtract. (2.NBT.B.5, 7-9)</p> <p>Operations and Algebraic Thinking 2.OA.1 I can add within 20. (2.OA.B.2) 2.OA.2 I can subtract within 20. (2.OA.B.2) 2.OA.3 I can represent and solve problems involving addition and subtraction. (2.OA.A.1)</p> <p>Measurement and Data Investigations 2.MD.4 I can represent and interpret data. (2.MD.D.9-10)</p>	<p>Essential Question and Enduring Understanding Addressed in this Topic:</p> <p>Essential Question</p> <ol style="list-style-type: none"> How can place value be helpful in adding and/or subtracting multi digit numbers? <p>Enduring Understanding</p> <ul style="list-style-type: none"> There are a variety of ways to add or subtract multi-digit numbers. We can use what we know about place value to help make adding and subtracting more accurate and efficient. Sometimes, numbers may need to be composed or decomposed in order to see relationships between numbers. Sums and differences can be found using base-ten blocks and base- ten diagrams, which support our place value understanding.
<p>In this Topic, students will know:</p> <ul style="list-style-type: none"> When counting by tens forward and backwards the ones place stays the same and the tens place changes (97, 87, 77, 67, 57, 47. . .). How to represent and read two-digit numbers using place value blocks and base-ten diagrams. The value of the tens and ones digits. The Three-Reads routine is a way to make sense of story problems. We can decompose numbers in multiple ways. 	<p>Topic Vocabulary: Three-Reads routine</p> <p>Academic vocabulary Compose Decompose Addend Representation Unknown value</p>

In this Topic, students will be able to:

- Mentally add 10 to a given number within 100.
- Solve compare problems using visuals and/or equations.
- Find the unknown addend.
- Add and subtract within 100 without composing or decomposing a ten using methods based on place value and the relationship between addition and subtraction.
- Make sense of story problems.
- Describe how they used place value understanding to add and subtract within 100.
- Recognize comparison situations.

Plan for Student Reflection:

[Student Journal Prompts and Reflection Practices](#)

Plan for Teacher Reflection:

Lesson 1: How did using the connecting cubes in today's lesson help students consider strategies based on place value when adding or subtracting?

Lesson 2: Who got to do math today in class and how do you know? Identify the norms or routines that allowed those students to engage in mathematics. How can you adjust these norms and routines so all students do math tomorrow?

Lesson 3: In the first activity, students used the Three Reads routine to make sense of the problem. What strategies did you see students use to make sense of the story problems on their own? What questions did you ask to ensure students made connections between their representations, calculations, and the context of the stories?

Lesson 4: Identify ways the math community you are working to foster is going well. What aspects would you like to work on? What actions can you take to improve those areas?

Utilize additional strategies for Teacher Reflection:

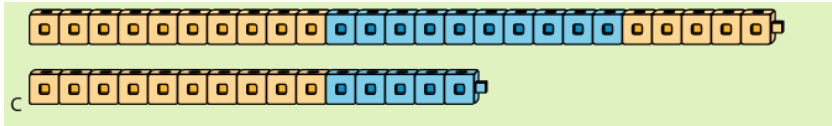
- Reviewing formative assessments

- | | |
|--|---|
| | <ul style="list-style-type: none">● Developing scaffolds● Collaborative scoring● PLCs● Planning for small groups |
|--|---|

Topic 1 Task Development

Each Topic has its own Task that serves as a roadmap for instruction during the unit. The task follows the [Learning Cycle Model](#) that drives teaching and learning in Naugatuck Public Schools.

<p>Task Title: Topic 1 - Add and Subtract</p>	<p>Grade Level and Unit: Grade 2, Unit 2</p>										
<p>Description of Task: Students learn new stages of centers that were introduced in grade 1. In Activity 1, students learn stage 3 of the Capture Squares center. In this new stage, called Add within 20, students find the value of sums within 20. In Activity 2, students learn stage 6 of the Five in a Row center. In this stage, students practice finding the value of sums within 100 that require composing when adding by place.</p>	<p>Purpose of Task: The purpose of this task is for students to practice addition and subtraction within 100 that does not require composing or decomposing a ten.</p>										
<p>Background of Students/Learning Progression: In previous grades, students solved a variety of Add To, Take From, Put Together/Take Apart, and Compare problems. In previous lessons, students added and subtracted within 100 without composing or decomposing a ten using methods based on place value and the relationship between addition and subtraction.</p>	<p>Ensure all competencies are addressed in the task:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes, all competencies are addressed <input type="checkbox"/> No - Task needs modification 										
<p>Getting Started: In the lessons that make up Topic 1 - Section A of Unit 2, students will:</p> <ul style="list-style-type: none"> ● Add and subtract within 100 using strategies based on place value and the relationship between addition and subtraction. Problems in this section are limited to the problems like $65 - 23$, where decomposing a ten is not required. <p>Lesson 1 Warm Up - Which One Doesn't Belong: Compare Representations</p> <p>This warm-up prompts students to carefully analyze and compare features of different representations of two-digit numbers. When they share their comparisons, listen for the vocabulary they use to talk about the characteristics of tape diagrams, bar graphs, and base-ten diagrams and provide them opportunities to clarify their meaning. This warm up will access background knowledge needed for this topic in which students will add and subtract within 100 based on place value strategies in comparison situations.</p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="170 1263 974 1482" style="border: 1px solid black; padding: 5px;"> <p>Which one doesn't belong?</p> </div> <div data-bbox="1129 1287 1776 1482"> <p>This Year's Weather</p> <table border="1"> <caption>This Year's Weather Data</caption> <thead> <tr> <th>Weather Condition</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>windy</td> <td>10</td> </tr> <tr> <td>cloudy</td> <td>15</td> </tr> <tr> <td>sunny</td> <td>25</td> </tr> <tr> <td>rainy</td> <td>10</td> </tr> </tbody> </table> </div> </div>		Weather Condition	Frequency	windy	10	cloudy	15	sunny	25	rainy	10
Weather Condition	Frequency										
windy	10										
cloudy	15										
sunny	25										
rainy	10										



“How does each representation show the difference between cloudy and sunny days?” (C maybe shows the difference with blocks. If the top train of blocks is sunny days, you can see there are more sunny days. B shows it with a tape diagram, the part with the question mark shows the difference. D uses a bar graph. You can see sunny days have more than cloudy days and you could count the number of spaces they are apart. “A” shows with blocks too, but they are in towers of ten and single cubes. You can see sunny are ten more.)

Section A

IM Lesson	Lesson 1: Add and Subtract to Compare	Lesson 2: Find the Unknown Addend	Lesson 3: Add or Subtract to Solve Story Problems	Lesson 4: Center Day 1 (optional)
Learning Cycle Model	Making Meaning	Making Meaning	Investigate	Create and Produce
Naugatuck Math Competency	2.MD.4 2.NS.4, 2.NS.5 2.OA.3	2.NS.2 2.NS.4, 2.NS.5	2.NS.4, 2.NS.5 2.OA.3	2.NS.4, 2.NS.5 2.OA.1, 2.OA.2
Math Practice Standards	MP6	MP7	MP5, MP7	
Lesson Purpose	The purpose of this lesson is for students to add and subtract within 100 without composing or decomposing a ten.	The purpose of this lesson is for students to find the value of unknown addends by adding or subtracting within 100.	The purpose of this lesson is for students to solve story problems involving addition and subtraction within 100 without composing or decomposing a ten.	The purpose of this lesson is for students to practice addition and subtraction within 100 that does not require composing or decomposing a ten.
Vocabulary Focus	Compose, decompose	Addend		

<p>Lesson Materials/ Resources</p>	<p>Lesson 1 Slides</p> <p>Teacher Presentation Materials</p> <p>Student Pages</p> <p>Activities 1 and 2:</p> <ul style="list-style-type: none"> ● Create towers of 10 with the connecting cubes. ● Have single connecting cubes available. ● Give each group of 2 access to these cubes. <p>Cool-down: Compare the Trains</p>	<p>Lesson 2 Slides</p> <p>Teacher Presentation Materials</p> <p>Student Pages</p> <p>Activities 1 and 2:</p> <ul style="list-style-type: none"> ● Each group of 2 needs 90–100 connecting cubes, but no more than 3–5 towers of 10 cubes should be included in their collection. Break apart any extra towers for this activity. ● Access to base ten blocks. <p>Cool-down: Find the Unknown Addend</p>	<p>Lesson 3 Slides</p> <p>Teacher Presentation Materials</p> <p>Student Pages</p> <p>Activities 1 and 2:</p> <ul style="list-style-type: none"> ● Give each group of 2 students access to connecting cubes and base-ten blocks <p>Cool-down: Time to Leave</p>	<p>Lesson 4 Slides</p> <p>Teacher Presentation Materials</p> <p>Student Pages</p> <p>Activity 1:</p> <ul style="list-style-type: none"> ● Give each pair of students a copy of the Capture Squares Stage 3 Gameboard the Capture Squares Stage 3 Spinner and a paper clip, a set of cards, and access to crayons or colored pencils. <p>Activity 2:</p> <ul style="list-style-type: none"> ● Give each group a Five in a Row Addition and Subtraction Stage 6 Gameboard, 2 paper clips, and two-color counters.
<p>Assessment</p>	<p>Formative Assessment Strategies: observation, questioning, student discourse : Monitoring Sheet See Section A Checkpoint Assessment, Section A Checkpoint Teacher’s Guide</p>			
	<p>Section A Practice Problems</p>			
<p>Centers Materials</p>	<p>Capture Squares (1–3), Stage 1: Add within 10 (Supporting)</p> <p>Five in a Row: Addition and Subtraction (1–2), Stage 5: Add within 100</p>	<p>Capture Squares (1–3), Stage 1: Add within 10 (Supporting)</p> <p>Five in a Row: Addition and Subtraction (1–2), Stage 5: Add within 100</p>	<p>Capture Squares (1–3), Stage 1: Add within 10 (Supporting)</p> <p>Five in a Row: Addition and Subtraction (1–2), Stage 5: Add within 100</p>	

	without Composing (Supporting)	without Composing (Supporting)	without Composing (Supporting)	
--	-----------------------------------	-----------------------------------	-----------------------------------	--

Making Meaning:

In Lesson 1, students build on their work with interpreting bar graphs and solving Compare story problems to add and subtract within 100 with larger numbers. The representations presented in both activities (bar graphs and connecting cubes) invite students to use and connect a variety of different methods and prepare them for subtraction methods based on place value.

In Lesson 2, In this lesson, students add or subtract within 100 without composing or decomposing a ten and share the methods they use to find unknown addends. During each synthesis, students share methods based on place value and discuss the relationship between addition and subtraction. This lesson also serves the purpose of introducing base-ten blocks as a math tool that can be used to represent larger numbers and computation methods based on place value. Throughout the lesson, students have opportunities to describe the usefulness of this new tool in comparison to connecting cubes and other representations they may use to find unknown values (MP5).

Lesson 1: [Add and Subtract to Compare](#)

- The purpose of this lesson is for students to add and subtract within 100 without composing or decomposing a ten.
- [Lesson 1 Slides](#)
- [Teacher Presentation Materials](#)

Lesson 2: [Find the Unknown Addend](#)

- The purpose of this lesson is for students to find the value of unknown addends by adding or subtracting within 100.
- [Lesson 2 Slides](#)
- [Teacher Presentation Materials](#)

Investigation:

In previous grades, students solved a variety of Add To, Take From, Put Together/Take Apart, and Compare problems. In previous lessons, students added and subtracted within 100 without composing or decomposing a ten using methods based on place value and the relationship between addition and subtraction.

In Lesson 3, students are invited to solve story problems and show their thinking or computations in whatever way makes sense to them. The

activity and lesson syntheses focus on describing and connecting methods based on place value in preparation for upcoming lessons.

In Lesson 4, Activity 1, students learn stage 3 of the Capture Squares center. In this new stage, called Add within 20, students find the value of sums within 20. In Activity 2, students learn stage 6 of the Five in a Row center. In this stage, students practice finding the value of sums within 100 that require composing when adding by place.

Lesson 3: [Add or Subtract to Solve Story Problems](#) (Warm Up and Activity 1)

- The purpose of this lesson is for students to solve story problems involving addition and subtraction within 100 without composing or decomposing a ten.
- [Lesson 3 Slides](#)
- [Teacher Presentation Materials](#)

Students will solve story problems about the zoo and show their thinking in a way that makes sense to them based on their place value understanding.

The purpose of this activity is to solve different story problems by adding or subtracting within 100 without composing or decomposing a ten. Each problem elicits the relationship between addition and subtraction and can be solved with either operation. Students are encouraged to describe methods based on place value and should have access to base-ten blocks. Monitor for students who use base-ten blocks and students who use base-ten diagrams to represent methods based on adding or subtracting by place. Then, students will compare representations and make connections between concrete representations and drawings.

Invite students to use the Three Reads routine to support reading comprehension. Some students may also benefit from reading the story problems with their partner before working independently.

Create and Produce:

Lesson 4: [Center Day 1 \(optional\)](#)

- The purpose of this lesson is for students to practice addition and subtraction within 100 that does not require composing or decomposing a ten.
- [Lesson 4 Slides](#)
- [Teacher Presentation Materials](#)

Communicate and Present:

Reflection:

<p>Students will share their solutions to the zoo story problems in Lesson 3 Activity 2. Students may communicate their strategies by showing their base ten blocks and/or base ten drawings.</p> <p>If students do not show evidence of grouping tens and ones, consider asking: “What did you do to answer the story problem?” “How could you use what you know about tens and ones to add or subtract?”</p>	<p>Consider selecting a student who used base-ten blocks first, followed by a student who used a base-ten drawing.</p> <p>If no students use a base-ten drawing, draw one to record the way a student uses their blocks to represent and solve the problem.</p> <p>“How are these representations the same?” (Both started by representing 88 birds. _____ moved away 3 tens and 4 ones and _____ crossed out 3 tens and 4 ones.)</p>
<p>Notes: Follow all lessons in numerical order.</p>	<p>Complete File with Resources and Task:</p>

Topic # 2 (Section B)

Topic Name: Section B - Ways to Represent Data

Duration:

Recommended 6 days (6 lessons)

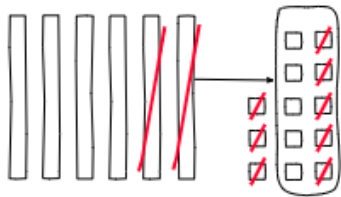
Topic Description:

In this section, students subtract one- and two-digit numbers from two-digit numbers within 100. To reason about differences of two numbers, they use methods based on place value, base-ten blocks and diagrams, and properties of operations. The numbers here require students to decompose a ten when subtracting by place.

Students also make sense of different representations of subtraction by place, including those that show their peers' reasoning. For example, to find the value of $63-18$, students might use base-ten blocks or drawings to represent tens and ones. In this case, they might decompose 1 ten from 63 and exchange it for 10 ones, making 5 tens and 13 ones. From here, some students may first take away 8 ones, and then 1 ten. Others may take away 1 ten, then 8 ones.

When students discuss different approaches and explain why they result in the same value, they deepen their understanding of the properties of operations and place value.

$63-18$



The reasoning here builds a foundation for students to understand the standard algorithm for subtraction, but students should not be encouraged to use the notation for the standard algorithm at this point. Allow them to build conceptual understanding by reasoning with base-ten blocks and drawings and articulating their thinking.

Section Learning Goals:

- Subtract within 100 using strategies based on place value, including decomposing a ten, and the properties of operations.

Competencies Addressed:

Understanding and Applying Number Systems

2.NS.1. I can use my understanding of place value and properties of operations to add. (2.NBT.B.5-9)

2.NS.2 I can use my understanding of place value to subtract. (2.NBT.B.5, 7-9)

Operations and Algebraic Thinking

2.OA.1 I can add within 20. (2.OA.B.2)

2.OA.2 I can subtract within 20. (2.OA.B.2)

Essential Question and Enduring Understanding Addressed in this Topic:

Essential Questions

1. How can place value be helpful in adding and/or subtracting multi-digit numbers?
2. How can we make our thinking visible when adding and subtracting multi-digit numbers?

Enduring Understanding

- **There are a variety of ways to add or subtract multi-digit numbers.** We can use what we know about place value to help make adding and subtracting more accurate and efficient. Sometimes, numbers may need to be composed or decomposed in order to see relationships between numbers. Sums and differences can be found using base-ten blocks and base-ten diagrams, which support our place value understanding.
- **Making our thinking visible when adding and subtracting multi-digit numbers can help us stay organized and be more accurate, effective, and efficient.** We can use base-ten blocks and base-ten diagrams to make our thinking visible alongside our equations when adding and subtracting two-digit

	<p>numbers. We can also use tape diagrams to represent the problem and show the unknown.</p>
<p>In this Topic, students will know:</p> <ul style="list-style-type: none"> • How to use base-ten blocks to make their thinking visible when subtracting. • When it is effective to count back to subtract and when it is more efficient to decompose a ten to subtract. • When there are not enough ones to subtract by place, you can decompose 1 ten for 10 ones. • The value of an expression doesn't change when the total number of tens and ones stays the same (for example, $26 = 20 + 6 = 10 + 16$). • There are multiple methods for subtracting. 	<p>Topic Vocabulary:</p> <p>Academic vocabulary Decompose Method Difference</p>
<p>In this Topic, students will be able to:</p> <ul style="list-style-type: none"> • Subtract a one-digit number from a two-digit number. • Justify how methods are the same and how they are different with an emphasis on describing how tens are subtracted from tens and ones from ones. • Add and subtract within 100, including composing and decomposing a ten, using strategies based on place value and the properties of operations. • Subtract a two-digit number from a two-digit number and show this with base-ten blocks, base-ten diagrams and expressions/equations. • Use place value and the properties of operations to find the value of an expression mentally. 	<p>Plan for Student Reflection:</p> <p>Student Journal Prompts and Reflection Practices</p> <hr/> <p>Plan for Teacher Reflection:</p> <p>Lesson 5: In grade 1, students learn that the two digits of a two-digit number represent amounts of tens and ones. How did the work of today's lesson build on that understanding?</p> <p>Lesson 6: In upcoming lessons, students will subtract two-digit numbers from two-digit numbers with and without decomposing a ten. What do students need to understand about place value in order to use strategies that would require decomposing when subtracting by place?</p> <p>Lesson 7: How are base-ten blocks and diagrams supporting students in showing what they understand about decomposing a ten when</p>

subtracting by place?

Lesson 8: What did you say, do, or ask to support students in trying each method for subtracting two-digit numbers from two-digit numbers? What will you do in upcoming lessons to help students make sense of and connect different methods?

Lesson 9: Reflect on whose thinking was heard today. Reflect on whose thinking was not heard but could have enriched the conversations. What prompts or structures might better enable the latter to share their voices and reasoning?

Lesson 10: As students worked together today, where did you see evidence of the mathematical community established over the course of the school year?

Utilize additional strategies for Teacher

Reflection:

- Reviewing formative assessments
- Developing scaffolds
- Collaborative scoring
- PLCs
- Planning for small groups

Topic 2 Task Development

Each Topic has its own Task that serves as a roadmap for instruction during the unit. The task follows the [Learning Cycle Model](#) that drives teaching and learning in Naugatuck Public Schools.

Task Title: Topic 2 - Decompose to Subtract	Grade Level and Unit: Grade 2, Unit 2
Description of Task: Students will create a visual display to show their thinking about one expression that they choose. The expressions choices are two-digit by two-digit addition and subtraction. Visual displays should include details such as notes, diagrams, drawings, etc., to help others understand their thinking. They can also use base-ten blocks to show their thinking. They will be sharing their displays with others so they can look for things that are the same or different in methods.	Purpose of Task: The purpose of this task is for students to add and subtract within 100 using the methods that make sense to them. Throughout the activity students share their methods for adding and subtracting and compare their method with others.
Background of Students/Learning Progression: Students have been working on tasks to build their place value understanding and the structure of the base-ten system. They explored how this understanding can help them figure out how to effectively add and subtract two-digit and one-digit numbers and two-digit and two-digit numbers. Students have been engaging in activities that build their fluency within 20. Later they will apply this understanding to three-digit numbers.	Ensure all competencies are addressed in the task: <ul style="list-style-type: none"><input type="checkbox"/> Yes, all competencies are addressed<input type="checkbox"/> No - Task needs modification
Getting Started In the lessons that make up Topic 2 - Section B of Unit 2, students will: <ul style="list-style-type: none">● Subtract within 100 using strategies based on place value, including decomposing a ten, and the properties of operations. Lesson 5 Warm Up <ul style="list-style-type: none">● Lesson 5 Slides● Teacher Presentation Materials This Number Talk encourages students to think about subtraction with expressions that may require decomposing and to rely on using what they know about place value and counting up or back to mentally solve problems. The strategies elicited here will be helpful later when students subtract one-digit numbers from two-digit numbers.	

Find the value of each expression mentally.

- $17 - 7$
- $17 - 8$
- $26 - 6$
- $26 - 8$

“Give me a signal when you have an answer and can explain how you got it.”

“How could you use the third expression to help you find the difference of the last expression?” (I know that taking away 6 gets me to 20, then I just took 2 more away.)

Section B

IM Lesson	Lesson 5: Subtract Your Way	Lesson 6: Compare Methods for Subtraction	Lesson 7: Subtract Two Digits	Lesson 8: Different Ways to Decompose	Lesson 9: Add and Subtract Within 100	Lesson 10: Center Day 2 (optional)
Learning Cycle Model	Making Meaning	Making Meaning	Making Meaning	Investigation	Create / Produce	Additional Learning
Naugatuck Math Competency	2.NS.5	2.NS.5	2.NS.4, 2.NS.5	2.NS.4, 2.NS.5	2.NS.4, 2.NS.5	2.NS.4, 2.NS.5 2.OA.1, 2.OA.2
Math Practice Standards	MP7	MP3, MP7	MP3, MP7	MP7	MP3, MP6, MP7	MP6
Lesson Purpose	The purpose of this lesson is for students to subtract a one-digit number from a two-digit number and describe decomposing a ten when subtracting by place.	The purpose of this lesson is for students to compare methods for subtracting a one-digit number from a two-digit number with and without decomposing a ten.	The purpose of this lesson is for students to subtract a two-digit number from a two-digit number when a ten is decomposed when subtracting by place.	The purpose of this lesson is for students to make sense of different methods for subtracting a two-digit number from a two-digit number and describe how the methods are the	The purpose of this lesson is for students to add and subtract within 100, including composing and decomposing a ten, using strategies based on place value and the properties of operations.	The purpose of this lesson is for students to practice adding and subtracting within 100 using methods based on place value understanding, the properties of operations, and the relationship between addition and subtraction.

				same and different.		
Vocabulary Focus	Decompose		Method , difference			
Lesson Materials/ Resources	Lesson 5 Slides Teacher Presentation Materials Student Pages Activity 1: <ul style="list-style-type: none"> Give students access to connecting cubes and base-ten blocks. Activity 2: <ul style="list-style-type: none"> Give each group of 2 access to base-ten blocks. Cool-down: Find the Difference	Lesson 6 Slides Teacher Presentation Materials Student Pages Activity 1: <ul style="list-style-type: none"> Give students access to base-ten blocks. Activity 2: <ul style="list-style-type: none"> Give each student a copy of Target Numbers Stage 4 Recording Sheet and a set of the Number cards 0–10 (Remove 0 and 10 from each set of cards). Cool-down: Mai’s Method	Lesson 7 Slides Teacher Presentation Materials Student Pages Activity 1: <ul style="list-style-type: none"> Give students access to connecting cubes and base-ten blocks. Activity 2: <ul style="list-style-type: none"> Give each group a set of Using Blocks to Take Away and access to base-ten blocks. Cool-down: Decompose to Subtract	Lesson 8 Slides Teacher Presentation Materials Student Pages Activity 1: <ul style="list-style-type: none"> Give students access to base-ten blocks. Activity 2: <ul style="list-style-type: none"> Give students access to base-ten blocks. Cool-down: Whose Method is it Anyway?	Lesson 9 Slides Teacher Presentation Materials Student Pages Activity 1: <ul style="list-style-type: none"> Give each group a set of Sort and Find the Value and access to base-ten blocks. Activity 2: <ul style="list-style-type: none"> Give students access to base-ten blocks. Cool-down: Find the Value Your Way	Lesson 10 Slides Teacher Presentation Materials Student Pages Activity 1: <ul style="list-style-type: none"> Each group of 2 students will need 3 number cubes. Each group of 2 students will need base-ten blocks to represent at least 20 tens and 18 ones. Give each student a copy of Target Numbers Stage 5 Recording Sheet Activity 2: <ul style="list-style-type: none"> Centers - see below
Assessment	Formative Assessment Strategies: observation, questioning, student discourse : Monitoring Sheet See Section B Checkpoint Assessment , Section B Checkpoint Teacher’s Guide					
						Section B Practice Problems

Centers Materials	<p>Capture Squares (1–3), Stage 3: Add within 20 (Addressing)</p> <p>Five in a Row: Addition and Subtraction (1–2), Stage 6: Add within 100 with Composing (Addressing)</p>	<p>Capture Squares (1–3), Stage 3: Add within 20 (Addressing)</p> <p>Five in a Row: Addition and Subtraction (1–2), Stage 6: Add within 100 with Composing (Addressing)</p>	<p>Capture Squares (1–3), Stage 3: Add within 20 (Addressing)</p> <p>Five in a Row: Addition and Subtraction (1–2), Stage 6: Add within 100 with Composing (Addressing)</p> <p>Target Numbers (1–5), Stage 4: Subtract Tens or Ones (Addressing)</p>	<p>Capture Squares (1–3), Stage 3: Add within 20 (Addressing)</p> <p>Five in a Row: Addition and Subtraction (1–2), Stage 6: Add within 100 with Composing (Addressing)</p> <p>Target Numbers (1–5), Stage 4: Subtract Tens or Ones (Addressing)</p>	<p>Capture Squares (1–3), Stage 3: Add within 20 (Addressing)</p> <p>Five in a Row: Addition and Subtraction (1–2), Stage 6: Add within 100 with Composing (Addressing)</p> <p>Target Numbers (1–5), Stage 4: Subtract Tens or Ones (Addressing)</p>	<p>Target Numbers, Stages 4 and 5</p> <p>Capture Squares, Stage 3 and 4</p> <p>Five in a Row: Addition and Subtraction (1–2), Stage 6: Add within 100 with Composing (Addressing)</p>
------------------------------	---	---	--	--	--	---

Making Meaning

In Lesson 5, in this lesson, students subtract a one-digit number from a two-digit number when a ten would need to be decomposed if they subtract by place. When subtracting a one-digit number from a two-digit number, students may count back to get to a ten and then count back from there. Although subtracting or counting back in this way is an effective method when subtracting a single-digit number, it is less practical when subtracting two-digit numbers. For this reason, students are encouraged to use cubes and base-ten blocks to help make decomposing a ten visible to all students and prepare students to consider decomposing the minuend in order to subtract by place. For example, $26 = 10 + 16$, so decomposing 26 into 1 ten and 16 ones will be helpful when representing subtraction using base-ten blocks later in this lesson.

In Lesson 6, Activity 1, students consider 3 methods for finding the difference represented using base-ten diagrams. In the second activity, students find the difference with and without decomposing a ten and represent their thinking using base-ten diagrams, words, or equations. Students are not expected to draw their work with base-ten diagrams in a specific way. Students should have access to base-ten blocks throughout the lesson and the cool-down. Students compare their methods, and the teacher records student thinking using base-ten diagrams and equations in the activity synthesis. In the lesson synthesis, students consider different ways to represent decomposing.

In previous lessons, students learned that decomposing a ten is sometimes necessary when subtracting two numbers. Students used connecting

cubes and base-ten blocks to represent their methods when subtracting a one-digit number from a two-digit number.

In Lesson 7, Activity 1, students use methods that make sense to them to subtract and compare their methods with a partner. In the activity synthesis, students make connections across different methods and representations and consider which tools and representations work best for them. In the second activity, students use base-ten blocks to represent expressions and decompose a ten when subtracting by place.

In Lesson 10, Activity 1, students learn stage 5 of the Target Numbers center which was introduced in a previous lesson. In this new stage, called Subtract Two-digit Numbers, students roll number cubes to create two-digit numbers from a starting number to get as close to 0 as possible. In Activity 2, students chose to continue working on Subtract Two-digit Numbers, or choose between two previously introduced centers focused on addition and subtraction within 20.

Lesson 5 : [Subtract Your Way](#)

- The purpose of this lesson is for students to subtract a one-digit number from a two-digit number and describe decomposing a ten when subtracting by place.
- [Lesson 5 Slides](#)
- [Teacher Presentation Materials](#)

Lesson 6: [Compare Methods for Subtraction](#)

- The purpose of this lesson is for students to compare methods for subtracting a one-digit number from a two-digit number with and without decomposing a ten.
- [Lesson 6 Slides](#)
- [Teacher Presentation Materials](#)

Lesson 7: [Subtract Two Digits](#)

- The purpose of this lesson is for students to subtract a two-digit number from a two-digit number when a ten is decomposed when subtracting by place.
- [Lesson 7 Slides](#)
- [Teacher Presentation Materials](#)

Investigation:

In Lesson 8, students make sense of different subtraction methods that use base-ten drawings to represent decomposing a ten to subtract by place. Students connect base-ten drawings to equations that represent the steps of a subtraction method. Throughout the lesson, students share claims and justify how methods are the same and how they are different with an emphasis on describing how tens are subtracted from tens and ones from ones and deepening their understanding of the properties of operations (MP3, MP7).

Lesson 8: [Different Ways to Decompose](#)

- The purpose of this lesson is for students to make sense of different methods for subtracting a two-digit number from a two-digit number and describe how the methods are the same and different.
- [Lesson 8 Slides](#)
- [Teacher Presentation Materials](#)

Create and Produce:

In Lesson 9, students choose their preferred methods and representations to add and subtract. Throughout the lesson, students are asked to connect expressions and diagrams, choose their own methods for adding and subtracting, and make sense of others' thinking (MP2, MP3, MP6). In Activity 2, students add and subtract within 100 using the methods that make sense to them. Throughout the activity students share their methods for adding and subtracting and compare their method with others (MP3).

Listen for the ways students explain their methods to others and look for ways to help students provide feedback to one another when their representations or explanations are not clear.

Lesson 9: [Different Ways to Decompose](#)

- The purpose of this lesson is for students to add and subtract within 100, including composing and decomposing a ten, using strategies based on place value and the properties of operations.
- [Lesson 9 Slides](#)
- [Teacher Presentation Materials](#)

Communicate and Present:

Lesson 9 Activity 2 - Students will share their visual displays in a gallery walk. They will share their thinking with their classmates and compare solution methods.

Possible Questions to Guide Discussion:

“How are the methods represented differently in each display?”

“How did each group find the same value when they used such different methods?”

“What was the same about how _____ found the value and _____ found the value?”

“What is different about how _____ represented their thinking and _____ represented theirs?” (_____ used a diagram and crossed out the ones and then decomposed a ten. Then _____ crossed out the rest of the ones and the tens. _____ wrote equations to show each step.)

Reflection:

“In this unit, you added and subtracted within 100 using different methods, tools, and representations.”

“What is something new you've learned about addition or subtraction?”

“What is something new you've learned about ways to add or subtract from another classmate?”

<p>Additional Learning:</p> <p>Lesson 10: Center Day 2 (optional)</p> <ul style="list-style-type: none">• The purpose of this lesson is for students to practice adding and subtracting within 100 using methods based on place value understanding, the properties of operations, and the relationship between addition and subtraction.• Lesson 10 Slides• Teacher Presentation Materials	
<p>Notes: Follow all lessons in numerical order.</p>	<p>Complete File with Resources and Task:</p>

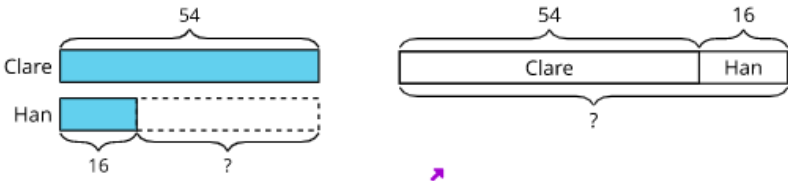
Topic # 3 (Section C)	Topic Name: Section C - Represent and Solve Story Problems	Duration: Recommended 7 days (6 lessons) 1 additional day for End of Unit Assessment
------------------------------	---	---

Topic Description:
In this section, students apply their knowledge to solve story problems that involve addition and subtraction within 100. The story problems include all types—Add To, Take From, Put Together/Take Apart, and Compare— and have unknowns in all positions.

Previously, students worked with diagrams that represent Compare problems. Throughout this section, students also make sense of diagrams that could represent Put Together/Take Apart story problems.

Clare and Han are playing a game with seeds.
Clare has 54 seeds on her side of the board.
Han has 16 seeds on his side.
How many seeds are on the board in all?

Which diagram matches this story? Explain your match to your partner.



As students relate quantities in context and diagrams that represent them, they practice reasoning quantitatively and abstractly (MP2).

Throughout the section, students are invited to interpret and solve problems in the ways that make sense to them (MP1). Math tools such as connecting cubes and base-ten blocks should be made available to encourage methods based on place value and the properties of operations to solve the problems.

Section Learning Goals

- Represent and solve one- and two-step problems involving addition and subtraction within 100, including different problem types with unknowns in all positions.

Competencies Addressed:	Essential Question and Enduring Understanding Addressed in this Topic:
--------------------------------	---

<p>Understanding and Applying Number Systems 2.NS.1. I can use my understanding of place value and properties of operations to add. (2.NBT.B.5-9) 2.NS.2 I can use my understanding of place value to subtract. (2.NBT.B.5, 7-9)</p> <p>Operations and Algebraic Thinking 2.OA.1 I can add within 20. (2.OA.B.2) 2.OA.2. I can subtract within 20. (2.OA.B.2) 2.OA.3. I can represent and solve problems involving addition and subtraction. (2.OA.A.1, 2MD.B.5-6)</p>	<p>Essential Question</p> <ol style="list-style-type: none"> How do you represent and solve addition and subtraction story problems? <p>Enduring Understanding</p> <ul style="list-style-type: none"> Representing story problems helps us to recognize how different pieces of information connect to one another. We can identify different types of story problems - Add To, Take From, Put Together, Take Apart, Compare, and Result Unknown to make sense of problems and help determine whether we will add or subtract. We can also determine the unknown in a problem. Unknowns can be used in all positions. We can use tape diagrams to represent the problem and show the unknown.
<p>In this Topic, students will know:</p> <ul style="list-style-type: none"> Story problems can be connected to diagrams. Symbols can represent an unknown number. Equations can represent story problems. Tape diagrams can be used to visualize story problems and find the unknown number. The relationship between addition and subtraction. Different types of story problems (Add to, Take From, Put Together, Take Apart, Compare, Result Unknown). 	<p>Topic Vocabulary: Abstract Quantitatively Inventory In stock</p> <p>Academic vocabulary Compare Difference unknown Tape Diagram Put together Take apart Symbol</p>

In this Topic, students will be able to:

- Solve one-step story problems within 100.
- Use tape diagrams and equations to represent different types of story problems within 100.
- Interpret story problems and use diagrams and equations to represent the unknown quantities.
- Represent and solve two-step story problems within 100.
- Use representations to make sense of problems, support their calculations, and explain their thinking.
- Add up to 4 two-digit numbers using strategies based on place value and properties of operations.

Plan for Student Reflection:

[Student Journal Prompts and Reflection Practices](#)

Plan for Teacher Reflection:

Lesson 11: Reflect on how comfortable your students are asking questions of you and of each other. What can you do to encourage students to ask and answer questions from their peers about their work?

Lesson 12: How does matching the story problems to tape diagrams help students understand the relationship between the known and unknown quantities in a story problem? How will the work of today's lesson help students interpret and use equations to represent story problems?

Lesson 13: Students shared how they were thinking about using equations throughout today's lesson. What language did students use to make connections between their equations and the story context? What questions did students have for their peers about the equations they used?

Lesson 14: Think about times when students were able to make connections to and build on the ideas of their peers during discussions today. What norms or routines allowed students to engage with other students' ideas?

Lesson 15: As you finish up this unit, reflect on the norms and activities that have supported each student in learning math. List ways you have seen each student grow as a young mathematician throughout this work. List ways you have seen

yourself grow as a teacher. What will you continue to do and what will you improve upon in the next unit?

Lesson 16: If you were to teach this lesson over again, what activity would you redo? How would your proposed changes support student learning?

Utilize additional strategies for Teacher Reflection:

- Reviewing formative assessments
- Developing scaffolds
- Collaborative scoring
- PLCs
- Planning for small groups

Topic 3 Task Development

Each Topic has its own Task that serves as a roadmap for instruction during the unit. The task follows the [Learning Cycle Model](#) that drives teaching and learning in Naugatuck Public Schools.

Task Title: Topic 3 - Represent and Solve Story Problems	Grade Level and Unit: Grade 2, Unit 2
<p>Description of Tasks: Lesson 16 (Activity 1, 2, 3) Students decide on the inventory for items sold in a market of their choice. They must keep 3 kinds of items in stock and use their understanding of adding and subtracting within 100 to make sure they have a total of 100 items in their store. They will use their completed inventory sheet in the next activity. In the next part of the task, students role-play running a market and shopping at each other's stores. Students use their understanding of adding and subtracting within 100 to sell and restock their items using their inventory sheet. Students roll a number cube and use the results to decide how much of each item they buy in the store. Throughout the activity, they must make sense of the numbers and operations they use in the context of the market scenario (MP2). Buyers must use their results strategically and interpret them in the context of the number of items available at the store before they buy. Sellers must also keep track of their inventory by keeping up with how many of an item has sold and comparing that with how many they have in stock. Then, students summarize the sales activity in their store by using their inventory sheet to record their total sales, their ending inventory, and the number of items they need to restock the shelves for the next day. They use their understanding of the relationship between addition and subtraction to observe that the number of items subtracted (total sales) is the same as the number of items that need to be added to get back to the starting inventory (MP7).</p>	<p>Purpose of Task: The purpose of this task is for students to represent and solve one- and two-step story problems using methods that make the most sense to them. Students each select a problem to solve on their own and share their work with their group. Students can build on ideas of their peers as they share and listen to other ideas. Students will apply their understanding of adding and subtracting within 100 using place value and the properties of operations.</p> <p>Students will apply their understanding of addition and subtractions to a real world scenario.</p>
<p>Background of Students/Learning Progression: Students have been using multiple methods to add and subtract within 100 using place value and the properties of operations. These tasks give students the opportunity to apply their learning to a real world situation. In previous grades students used manipulatives to represent and solve story problems. Students will continue to make sense of story problems in upcoming lessons.</p>	<p>Ensure all competencies are addressed in the task:</p> <ul style="list-style-type: none"><input type="checkbox"/> Yes, all competencies are addressed<input type="checkbox"/> No - Task needs modification
Getting Started	

In the lessons that make up Topic 2 Section C Unit 2, students will:

- Represent and solve one- and two-step problems involving addition and subtraction within 100, including different problem types with unknowns in all positions.

Lesson 11 (Warm Up)

- [Lesson 11 Slides](#)
- [Teacher Presentation Materials](#)

What Do You Know About ____? students share what they know about story problems so that the teacher can gauge what students already know about story problems. Monitor for student comments regarding the types of story problems they know about and the methods they use to understand and represent story problems.

“What do you know about story problems?”, “What are some ways you can show what happens in a story problem?”

“Today we are going to solve different types of story problems and share the different ways we represent and solve them.”

Section C

IM Lesson	Lesson 11: How Do You Solve Story Problems?	Lesson 12: Story Problems and Diagrams	Lesson 13: Story Problems and Equations	Lesson 14: Solve It Your Way	Lesson 15: Center Day 3 (optional)	Lesson 16: Our Market’s Inventory (optional)
Learning Cycle Model	Making Meaning	Making Meaning	Investigation	Investigation	Investigation	Create/Produce
Naugatuck Math Competency	2.NS.4, 2.NS.5 2.OA.3	2.NS.4, 2.NS.5 2.OA.3	2.NS.4, 2.NS.5 2.OA.3	2.NS.4, 2.NS.5 2.OA.3	2.NS.4, 2.NS.5 2.OA1, 2.OA2, 2.OA.3	2.NS.4, 2.NS.5 2.OA.3
Math Practice Standards	MP1, MP2, MP3, MP5	MP1, MP2, MP4, MP7	MP2, MP4, MP7	MP2, MP3, MP6, MP7		MP2, MP7
Lesson Purpose	The purpose of this lesson is for students to represent and solve story problems involving addition and subtraction within 50 that require composing	The purpose of this lesson is for students to solve story problems of different problem types within 100.	The purpose of this lesson is for students to make sense of equations and connect them to the quantities in different types of story problems.	The purpose of this lesson is for students to represent and solve one- and two-step story problems.	The purpose of this lesson is for students to interpret diagrams, solve story problems, and add and subtract within 100.	The purpose of this lesson is for students to apply strategies for adding and subtracting within 100 within the context of a store.

	or decomposing a ten when adding or subtracting by place.					
Vocabulary Focus	Compare, difference unknown	Tape Diagram, Put together, Take apart, abstract, quantitatively	Tape diagram			Inventory, in stock
Lesson Materials/ Resources	Lesson 11 Slides Teacher Presentation Materials Student Pages Activity 1: <ul style="list-style-type: none"> Give students access to connecting cubes and base-ten blocks. Activity 2: <ul style="list-style-type: none"> Give students access to base-ten blocks. 	Lesson 12 Slides Teacher Presentation Materials Student Pages Activity 1: <ul style="list-style-type: none"> Give students access to base-ten blocks. Activity 2: <ul style="list-style-type: none"> Give students access to base-ten blocks. Give each group one set of cards from Card Sort Story Problem and Diagram Cards. 	Lesson 13 Slides Teacher Presentation Materials Student Pages Activity 1: <ul style="list-style-type: none"> Give students access to base-ten blocks Give each group the story problems (Cards A–I) from the Card Sort Story Problem and Diagram Cards. Give one set of Equations for Different Types of Word Problems to each group of students. Give each group access to base-ten 	Lesson 14 Slides Teacher Presentation Materials Student Pages Activity 1: <ul style="list-style-type: none"> Give students access to connecting cubes and base-ten blocks. Activity 2: <ul style="list-style-type: none"> Give students access to base-ten blocks. Give students materials to create a visual display. 	Lesson 15 Slides Teacher Presentation Materials Student Pages Give each student a recording sheet. Give each group a set of cards. Activity 1: <ul style="list-style-type: none"> Give each student a Math Stories Stage 5 Recording Sheet. Give each group a set of Math Stories Stage 5 Tape Diagrams. Activity 2: <ul style="list-style-type: none"> Centers - see below 	Lesson 16 Slides Teacher Presentation Materials Student Pages Activity 1: <ul style="list-style-type: none"> Save work for Activity 2 Activity 2: <ul style="list-style-type: none"> Work from Activity 1 Each student needs a number cube. Activity 3: <ul style="list-style-type: none"> Builds on Activities 1 and 2

	Cool-down: Tyler’s Seeds	Cool-down: Find the Match	blocks. Activity 2: <ul style="list-style-type: none"> Give students access to base-ten blocks Cool-down: Match the Equation	Cool-down: Jada’s Seeds		
Assessment	Formative Assessment Strategies: observation, questioning, student discourse : Monitoring Sheet See Section C Checkpoint Assessment , Section C Checkpoint Teacher’s Guide End of Unit 2 Assessment , End of Unit 2 Assessment Teacher Guide					
						Section C Practice Problems
Centers Materials	Target Numbers (1–5) , Stage 5: Subtract Two-digit Numbers (Addressing) Capture Squares (1–3) , Stage 4: Subtract within 20 (Addressing) Shake and Spill (K–2) , Stage 5: Cover (up to 20) (Supporting)	Target Numbers (1–5) , Stage 5: Subtract Two-digit Numbers (Addressing) Capture Squares (1–3) , Stage 4: Subtract within 20 (Addressing) Shake and Spill (K–2) , Stage 5: Cover (up to 20) (Supporting)	Target Numbers (1–5) , Stage 5: Subtract Two-digit Numbers (Addressing) Capture Squares (1–3) , Stage 4: Subtract within 20 (Addressing) Math Stories (K–2) , Stage 4: Add and Subtract (Supporting)	Target Numbers (1–5) , Stage 5: Subtract Two-digit Numbers (Addressing) Capture Squares (1–3) , Stage 4: Subtract within 20 (Addressing) Math Stories (K–2) , Stage 4: Add and Subtract (Supporting)	Target Numbers , Stages 4 and 5 Capture Squares , Stages 3 and 4 Five in a Row , Stage 6	Target Numbers (1–5) , Stage 5: Subtract Two-digit Numbers (Addressing) Math Stories (K–2) , Stage 5: Tape Diagrams (Addressing)

Making Meaning

In previous lessons, students interpreted and solved story problems within 100 that did not require decomposing a ten when subtracting by place. Students interpreted diagrams and equations with unknowns and connected them to story problems.

In Lesson 11, students are encouraged to use the methods and representations that make the most sense to them as they solve problems of different types. The activities in this lesson can be used to assess how students make sense of different types of story problems and the methods they use to solve them.

In previous lessons, students solved different story problems within 50 and compared different diagrams and methods. In Lesson 12, students interpreted and used tape diagrams to represent Compare story problems.

The problems in this lesson include some of the more challenging types (for example, Add To, Start Unknown). Students are introduced to tape diagrams as a way to represent the known and unknown quantities in Add To and Put Together / Take Apart problem types. Students are encouraged to find the unknown values in the way that makes the most sense to them. Students have opportunities to practice composing and decomposing a ten when using strategies based on adding or subtracting by place.

Lesson 11: [How Do You Solve Story Problems?](#)

- The purpose of this lesson is for students to represent and solve story problems involving addition and subtraction within 50 that require composing or decomposing a ten when adding or subtracting by place.
- [Lesson 11 Slides](#)
- [Teacher Presentation Materials](#)

Lesson 12: [Story Problems and Diagrams](#)

- The purpose of this lesson is for students to solve story problems of different problem types within 100.
- [Lesson 12 Slides](#)
- [Teacher Presentation Materials](#)

Investigation:

In previous lessons, students interpreted different types of story problems and matched them to diagrams.

In Lesson 13, students continue to connect story problems to diagrams and use their work to make sense of equations and symbols that represent the unknown number (MP2). Students solve different types of story problems within 100 using methods that make the most sense to them.

Lesson 13: [Story Problems and Equations](#)

- The purpose of this lesson is for students to make sense of equations and connect them to the quantities in different types of story problems.
- [Lesson 13 Slides](#)
- [Teacher Presentation Materials](#)

Lesson 14: [Solve It Your Way](#)

- The purpose of this lesson is for students to represent and solve one- and two-step story problems.
- [Lesson 14 Slides](#)
- [Teacher Presentation Materials](#)

Lesson 15 is an opportunity for extra practice interpreting diagrams and adding and subtracting within 100 that not all classes may need. In Activity 1, students learn stage 5 of the Math Stories center, which was last introduced in grade 1. In this new stage, called Tape Diagrams, students interpret tape diagrams and create their own story problems to solve. Then, students choose a center based on what they need to practice. Students may continue to choose stages that provide additional practice adding and subtracting two-digit numbers or may choose the stages that provide fluency practice with addition and subtraction within 20.

Lesson 15: [Center Day 3 \(optional\)](#)

- The purpose of this lesson is for students to interpret diagrams, solve story problems, and add and subtract within 100.
- [Lesson 15 Slides](#)
- [Teacher Presentation Materials](#)

Create and Produce:

Lesson 16 - Students role-play buying and selling items in a store. Students are responsible for selling 3 types of goods and keeping 100 items in stock for sale. In Activity 1, students adhere to certain constraints and choose what they want to sell and how much they want to sell. When students make decisions and choices and adhere to constraints, they model with mathematics (MP4). They set up their inventory sheet to keep track of their sales. In the second activity they take turns buying and selling. Sellers keep track of their inventory after each sale and at the end consider what they need to restock. When students analyze numerical information and interpret results, they model with mathematics (MP4).

Lesson 16: [Our Market's Inventory \(optional\)](#)

- The purpose of this lesson is for students to apply strategies for adding and subtracting within 100 within the context of a store.
- [Lesson 16 Slides](#)
- [Teacher Presentation Materials](#)

Communicate and Present:

Lesson 14:

Reflection:

Lesson 14:

<p>As you take a gallery walk:</p> <ul style="list-style-type: none"> • “What is the same and what is different between the different ways we made sense of and solved the story problem?” (Some groups used more than one tape diagram and equation to represent the problem. Some groups used one equation. We added the characters’ seeds in different ways. We used different ways to show how we added.) <p>Lesson 16: Activity 3: In this activity, students summarize the sales activity in their store by using their inventory sheet to record their total sales, their ending inventory, and the number of items they need to restock the shelves for the next day. They use their understanding of the relationship between addition and subtraction to observe that the number of items subtracted (total sales) is the same as the number of items that need to be added to get back to the starting inventory (MP7).</p> <p>Students give a sales report to summarize the activity in their store.</p> <p>“When you work in a store, at the end of the day you have to see how many items you have sold and you have to restock your shelves for the next day.”</p> <p>“For each product, record how many items were sold, how many are left, and how many are needed to restock.”</p> <p>“How did you decide the number of items to get from the stockroom?”</p> <p>“How can we be sure this is the correct restock amount?” (We’re replacing the exact amount that was sold. If we add the restock amount and the number of items left, we get the original starting amount.)</p>	<p>“In this section, we practiced making sense of and solving different kinds of story problems and using what we know about adding and subtracting two-digit numbers.”</p> <p>“What do you do to make sense of and solve story problems?”</p> <p>“What ideas for solving story problems have you learned from others?”</p> <p>Lesson 16: “We’ve been learning about adding and subtracting within 100. How does today’s lesson connect to what we learned?”</p>
<p>Notes: Follow lessons in numerical order.</p>	<p>Complete File with Resources and Task:</p>