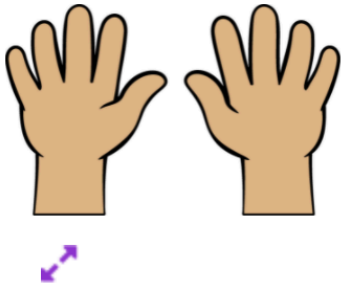
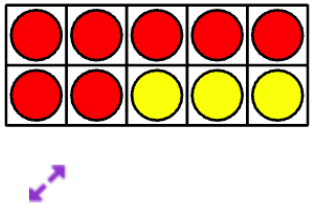
Course Title: Mathematics	Full Year	Required
Course Description: The mathematical work for kindergarten is partitioned into 8 units: ● Math in Our World ● Numbers 1–10 ● Flat Shapes All Around Us ● Understanding Addition and Subtraction ● Composing and Decomposing Numbers to 10 ● Numbers 0–20 ● Solid Shapes All Around Us ● Putting it All Together 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.		
Additional Course Information: The big ideas in Kindergarten include: ● Representing and comparing whole numbers, initially with sets of objects; ● Understanding and applying addition and subtraction; and ● Describing shapes and space. ● Deeply understanding the concept that counting up is an addition process (+1/adding one more) More time in kindergarten is devoted to numbers than to other topics.	**Core Resources:** **Illustrative Mathematics** **Instructional Routines and Math Language Routines** **Glossary - Student-friendly** **Required Materials** **IM en Español** **Developing a Mathematical Community** **Counting on Counting Collections Blog**	**Are there any attachments at the course level that teachers will need?** 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. Pacing Guide and Dependency Diagrams K-5

Unit 5: Composing and Decomposing Numbers to 10	Duration: 16-17 Days
Unit Overview - FOCUS: In this unit, students explore different ways to compose and decompose numbers within 10 and to represent the compositions and decompositions. Special attention is given to composing and decomposing 10, as it is the basis of place value in our number system. To support their reasoning, students use their fingers and a 10-frame—created by putting together two 5-frames. They use these tools to think about pairs of numbers that make 10.   Symbolic notation develops slowly across the units. Students first complete expressions that represent numbers being composed and decomposed. In doing so, they also practice writing numbers without handwriting lines. Later, students encounter equations of the form . Teachers read this equation as “5 is 3 plus 2.” Note that the equations are written with the total on the left side of the equal sign and the addends on the right. Aside from representing composition and decomposition, this notation helps students see that the equal sign means that “both sides have the same value,” rather than “the answer comes next.” In a later unit, students will see equations with the addends on the left side. The work here prepares students to make sense of teen numbers in the next unit and lays the groundwork for students to develop fluency with addition and subtraction facts within 10 in grade 1. (For example, to find the sum of , they can decompose 5 into and find or .) Much of the addition and	**Topic Titles:** ● **Section A: Make and Break Apart Numbers to 9** ○ Compose and decompose numbers up to 9 in more than one way ○ Write expressions to represent decompositions ● **Section B: More Types of Story Problems** ○ Solve Put Together, Total Unknown, Put Together/Take Apart, Both Addends Unknown, Add To, Result Unknown, and Take From, Result Unknown story problems. ● **Section C: Make and Break Apart 10** ○ For any number from 1 to 9, find the number that makes 10 when added to the given number

subtraction work in future grades also hinges on the idea of composing and decomposing numbers, 10 in particular.	

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

In Unit 4, students were introduced to the basics of addition and subtraction. They were introduced to story problems and expressions, as well as different ways to represent addition and subtraction, such as through drawings, pictures, etc.

Previously, students counted and compared groups and images of up to 10 objects. They solved addition and subtraction story problems and wrote expressions to represent the problems. Here, they use those experiences to compose and decompose numbers within 10. (The terms “make” or “break apart” are used with students.)

Essential Questions:	**Enduring Understanding:**
1. How can numbers be composed and decomposed? 2. How can addition and subtraction story problems be represented? 3. What are different ways to show and make 10?	**We can decompose a number into different parts and compose numbers based on given information.** We can use different tools and strategies in order to compose and decompose numbers. Such strategies can include: drawing pictures, using objects, using our fingers, or using 10 frames. **Addition and subtraction story problems can be represented through the use of drawings, objects, and expressions or equations.** Knowing the type of story problem (i.e., Put Together, Total Unknown, Put Together/Take Apart, Both Addends Unknown, Add To, Result Unknown, and Take From, Result Unknown) can help us to represent what is happening in the story accurately and find missing information. **We can use different strategies (such as using frames, fingers, and objects) to show and make 10.** These strategies help us to see how different parts can be composed into 10.

What Students Will Know:	**What students will do:**	**Unit Specific Vocabulary:**
● Numbers can be broken into two parts ● Numbers can be decomposed in different ways ● We can decompose objects and drawings ● We can represent a story problem through objects and drawings ● There are different kinds of story problems	● Understand that numbers can be composed or decomposed in different ways. ● Compose and decompose numbers up to 9 in more than 1 way. ● Represent decompositions with objects, drawings, and expressions. ● Solve and represent addition and subtraction story	“Check It Off” (new center) “What’s Behind my Back” (new center) Patterns Put Together, Total Unknown Make or Break Apart Numbers (new center) Put Together/Take Apart, Both Addends

● Some story problems may have multiple solutions (i.e. Put Together/Take Apart, Both Addends Unknown stories) ● Story problems can be represented by expressions or equations ● A 10 frame can represent any quantity up to 10 ● An addition equation represents compositions and decompositions ● There are multiple ways to decompose 10	problems ● Accurately retell a story problem in their own words. ● Use objects or drawings to represent a story problem. ● Explain how objects or drawings represent a story problem. ● Use labels, colors, numbers, or other methods to represent the two groups in a story problem. ● Create their own story problem with a similar context in previous activities ● Recognize that a full 10-frame contains 10 counters and that 2 hands have 10 fingers. ● Relate equations to compositions and decompositions of 10. ● Given a number, use the structure of 10-frames or fingers to determine how many more are needed to make 10. ● Given a number, use connecting cubes to determine how many more are needed to make 10. ● Given a number, know how many more are needed to make 10.	Unknown Math Stories Take From, Result Unknown Composition Decomposition “Math Fingers, Make 10” Strategy **Academic Vocabulary:** Compose Decompose Expression Parts Make Break Apart 10 Frames Total Pattern blocks Connecting cubes Story Problem Retell Add Subtract Counters Expression Plus Drawings Equation Solution Counting Sequence 5 Frame
Entry Level Assessment and Connection to Unit:	**Unit Materials, Resources and Technology:** ● Unit 5 Teacher Guide ● Illustrative Mathematics ● Instructional Routines and Math Language Routines ● Glossary - **Student-friendly**	

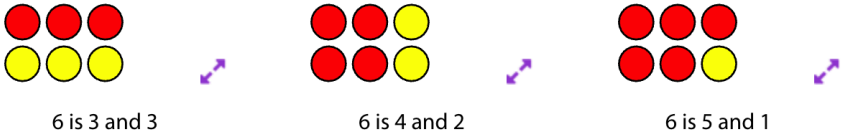
	• **Required Materials** • **IM en Español** • **Pacing Guide and Dependency Diagrams K-5**
Opportunities for Interdisciplinary Connections: Look for opportunities in other disciplines in which students can experiment and explore sets of objects. During this time, students can explore how they can compose and decompose sets of objects in different ways. They can also compare and contrast how they decomposed a set of objects by looking at different characteristics. Opportunities such as these can be found in science, literacy, etc.	
Any links, attachments and resources: Instructional Routines Document **Family Support Materials**	**Planning Ideas:** Components of a Typical IM Lesson What To Know About IM When Planning Where to Find the Mathematical Practices in the Units Assessing the Mathematical Practices

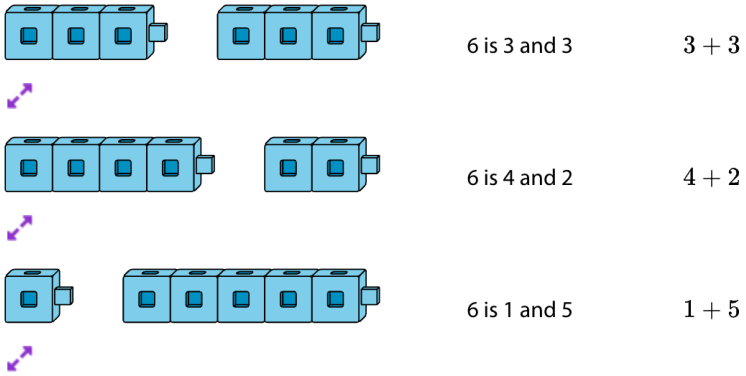
Topic # 1: Section A	Topic Name: Section A - Make and Break Apart Numbers to 9	Duration: Recommended: 4 days (4 lessons)

Topic Description:

In this section, students compose and decompose numbers to 9. They work with physical objects, such as counters and connecting cubes, that can help to show ways to make and break apart numbers.

As they progress through the lessons, students come to understand that there are different ways to compose and decompose a given number. They write expressions to record compositions and decompositions.





Section Learning Goals

- Compose and decompose numbers up to 9 in more than 1 way.
- Write expressions to represent decompositions.

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

Understanding and Applying Number Systems NS.3: I can count to 100 by ones and by tens and can count from a given number within 20. **K.CC.A.1- 2** **Operations and Algebraic Thinking** OA.1: I can represent addition within 10 and fluently add within 5. **K.OA.A.1, K.OA.A.4, K.OA.A.5** OA.2: I can represent subtraction within 10 and fluently subtract within 5. **K.OA.A.1, K.OA.A.5** OA.3: I can solve addition and subtraction word problems within 10. **K.OA.A.2** OA.4: I can break apart numbers 1 - 10 into pairs in more than one way. **K.OA.A.3**	**Essential Question:** How can numbers be composed and decomposed? **Enduring Understanding:** **We can decompose a number into different parts and compose numbers based on given information.** We can use different tools and strategies in order to compose and decompose numbers. Such strategies can include: drawing pictures, using objects, using our fingers, or using 10 frames.
In this Topic, students will know: ● Numbers can be broken into two parts ● Numbers can be decomposed in different ways ● We can decompose objects and drawings	**Topic Vocabulary:** “Check It Off” (new center) “What’s Behind my Back” (new center) Patterns **Academic vocabulary:** Compose Decompose Expression Parts Make Break Apart 10 Frames Total Pattern blocks Connecting cubes
In this Topic, students will be able to: ● Understand that numbers can be composed or decomposed in different ways. ● Compose and decompose numbers up to 9 in more than 1 way. ● Represent decompositions with objects, drawings, and expressions. ● Solve and represent addition and subtraction story problems	**Plan for Student Reflection:** Student Journal Prompts and Reflection Practices Grade K Unit 5 I Can Self Assessment

	Plan for Teacher Reflection: ● Reviewing formative assessments ● Developing scaffolds ● Collaborative scoring ● PLCs ● Planning for small groups **Teacher Journal Reflection Questions:** **Lesson 1**: What was the best question you asked students today? Why would you consider it the best one based on what students said or did? **Lesson 2**: Identify who has been sharing their ideas in class lately. Make a note of students whose ideas have not been shared and look for an opportunity for them to share their thinking in tomorrow's lesson. **Lesson 3**: In a future section, students will find more than one solution to a Put Together/Take Apart, Both Addends Unknown story problems. What do you notice in their work from today's lesson that you might leverage in that future lesson? **Lesson 4**: What part of the lesson went well today in terms of students' learning? What did you do that made that part go well?

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.

Task Title: Topic 1 - Make and Break Apart Numbers to 9	**Grade Level and Unit: Kindergarten, Unit 4**
Description of Task: Students will find all the possible ways to decompose the number 9. They will have access to connecting cubes and counters to show their decompositions. Then students will write expressions to represent all of the ways they made 9. When sharing with a partner, students are encouraged to show both representations to their peers and explain the two parts.	**Purpose of Task:** The purpose of this task is for students to compose and decompose numbers to 9. They work with physical objects, such as counters and connecting cubes, that can help to show ways to make and break apart numbers.
Background of Students/Learning Progression: In this unit, students explore different ways to compose and decompose numbers within 10 and to represent the compositions and decompositions. Previously, students counted and compared groups and images of up to 10 objects. They solved addition and subtraction story problems and wrote expressions to represent the problems. Here, they use those experiences to compose and decompose numbers within 10. (The terms “make” or “break apart” are used with students.)	**Ensure all competencies are addressed in the task:** ▢ Yes, all competencies are addressed ▢ No - Task needs modification
Getting Started: In this lessons that make up Topic 1 - Section A of Unit 5, students will be prompted with the following task: ● “Look at the picture below that we have seen in the previous unit. What do you notice about the peas? Are there different ways that we can describe how many there are?”	

Section A

IM Lesson	L1: Make 2 Parts	L2: Make and Break Apart Pattern Block Designs	L3: Snap the Cubes	L4: Find All the Ways
Learning Cycle Model	**Making Meaning**	**Making Meaning**	**Investigation**	**Create and Produce**
Naugatuck Math Competency	K.OA.1, K.OA.2, K.OA.3, K.OA.4	K.OA.4	K.OA.4	K.NS.3, K.OA.4
Math Practice Standards	-	MP 6	MP 7	MP 7
Lesson Purpose	The purpose of this lesson is for students to compose and decompose numbers up to 9 and understand that numbers can be composed and decomposed in more than one way.	The purpose of this lesson is for students to compose and decompose numbers up to 9 in more than 1 way.	The purpose of this lesson is for students to find multiple decompositions of a number and look for patterns in decompositions.	The purpose of this lesson is for students to find all the ways to decompose a number.
Vocabulary Focus	Compose, decompose, addend	Compose, decompose, addend	Pattern, compose, decompose, addend	Decompose, addend

Lesson Materials/ Resources	Lesson 1 Slides Teacher Presentation Materials Student Pages **Activity 1:** ● Each student needs 6 connecting cubes **Activity 2:** ● Each group of 2 has a container of connecting cubes **Activity 3:** Intro to Check It Off (Stage 1) ● Each group of 2 gets Number Cards 0-10 ● Each student gets a Check It Off Recording Sheet (Stage 1)	Lesson 2 Slides Teacher Presentation Materials Student Pages **Activities 1 and 2:** ● Each student needs crayons ● Each student needs 7 pattern blocks-only green triangles and orange squares.	Lesson 3 Slides Teacher Presentation Materials Student Pages **Activity 1:** **Intro to** What's Behind My Back? (Stage 1) ● Each group of students at least 8 connecting cubes and access to 2 different color crayons ● What's Behind My Back Recording Sheet **Activity 2:** ● Each group of students needs access to connecting cubes, pattern blocks, and two-color counters **Cool Down:** ● Cool Down Page	Lesson 4 Slides Teacher Presentation Materials Student Pages Optional Lesson **Activity 1:** ● Each student needs access to a container of connecting cubes **Activity 2:** ● Each group of 2 needs container of connecting cubes and two-colored counters
Assessment	**Formative Assessment Strategies: observation, questioning, student discourse.** **See Checkpoint A Document, Checkpoint A Teacher Guide, and Grade K Unit 5 I Can Self Assessment**			
				Section A Practice Problems
Centers Materials	Find the Value of Expressions (Stage 1) Bingo (Stages 1–3) Shake and Spill (Stages 1–3)	Find the Value of Expressions (Stage 1) Bingo (Stages 1–3) Shake and Spill (Stages 1–3)	Find the Value of Expressions (Stage 1) Bingo (Stages 1–3) Shake and Spill (Stages 1–3)	Find the Value of Expressions (Stage 1) Bingo (Stages 1–3) Shake and Spill (Stages 1–3)

		Check It Off (Stage 1)	Check It Off (Stage 1)	Check It Off (Stage 1) What's Behind My Back? (Stage 1)

Making Meaning:

Lesson 1: Make 2 Parts

- The purpose of this lesson is for students to compose and decompose numbers up to 9 and understand that numbers can be composed and decomposed in more than one way.
- Lesson 1 Slides
- Teacher Presentation Materials

Lesson 2: Make and Break Apart Pattern Block Designs

- The purpose of this lesson is for students to compose and decompose numbers up to 9 in more than 1 way.
- Lesson 2 Slides
- Teacher Presentation Materials

Investigation:

Lesson 3: Snap the Cubes

- The purpose of this lesson is for students to find multiple decompositions of a number and look for patterns in decompositions.
- Lesson 3 Slides
- Teacher Presentation Materials

Activities in Lesson 3 best represent investigation as students are introduced to decomposing numbers in a written form. Students may use objects such as connecting cubes to represent each number and find different ways to decompose the number into two parts.

Create and Produce:

Lesson 4: Find All the Ways

- The purpose of this lesson is for students to find all the ways to decompose a number.
- Lesson 4 Slides

- Teacher Presentation Materials

In lesson 4, Activity 2, students will find all the possible ways to decompose the number 7. They will have access to connecting cubes and counters to show their decompositions. Then students will write expressions to represent all of the ways they made 7.
Monitor students as they use the connecting cubes and counters to represent their decompositions. Keep a close eye on the expressions that they write and look for any misconnections between the two representations.
Listen for students using the precise vocabulary “break apart” and “parts”.

Communicate and Present:
Invite students to share all of their decompositions with a partner.

Lesson 4: Find All the Ways

- The purpose of this lesson is for students to find all the ways to decompose a number.
- Lesson 4 Slides
- Teacher Presentation Materials

In lesson 4, Activity 2, students will find all the possible ways to decompose the number 7. They will have access to connecting cubes and counters to show their decompositions. Then students will write expressions to represent all of the ways they made 7. When sharing with a partner, students are encouraged to show both representations to their peers and explain the two parts.

Reflection:

- IM Reflection Practices
- Grade K Unit 5 I Can Self Assessment

Notes:
Follow lessons in numerical order.

Complete File with Resources and Task:

Topic # 2: Section B	Topic Name: Section B - More Types of Story Problems	Duration: Recommended: 5 days (5 lessons)

Topic Description:

In this section, students represent and solve Put Together/Take Apart story problems—first where the total is unknown, and later where both addends are unknown. Students also see equations and learn the term for the first time.

Jada made 6 paletas with her brother.

They made two flavors, lime and coconut.

How many of the paletas were lime?

Then how many of the paletas were coconut?

Problems where both addends are unknown may be more challenging because there is no action in the story and more than one solution is possible. Students work to find multiple solutions but are not expected to find all the solutions in kindergarten.

To represent and solve story problems, students continue to use math tools and drawings, and to explain how their representation shows the story. They may use methods such as clearly separating the groups, using 2 colors, or using letter, word, and number labels to make their drawings easier for others to understand. Students also write expressions independently to record the solutions to the story problems.

Equations are introduced as a way to record the quantities and solutions in story problems. For instance, as a student explains a solution to the paleta problem, the teacher writes “6 = 2 + 4” and says: “Jada made 6 paletas, 2 in coconut flavor and 4 in lime flavor. We can write that as 6 is 2 plus 4.”

All equations in this unit are written with the total first (on the left side of the equal sign). Equations are read as “6 is 2 plus 4,” rather than “6 equals 2 plus 4.” Note that students are not expected to interpret equations at this time.

Section Learning Goals

- Solve Put Together, Total Unknown, Put Together/Take Apart, Both Addends Unknown, Add To, Result Unknown, and Take From, Result Unknown story problems.

Competencies Addressed:

Understanding and Applying Number Systems

NS.3: I can count to 100 by ones and by tens and can count from a given number within 20. **K.CC.A.1- 2**

Operations and Algebraic Thinking

OA.1: I can represent addition within 10 and fluently add within 5. **K.OA.A.1, K.OA.A.4, K.OA.A.5**
OA.2: I can represent subtraction within 10 and fluently subtract within 5. **K.OA.A.1, K.OA.A.5**
OA.3: I can solve addition and subtraction word problems within 10. **K.OA.A.2**
OA.4: I can break apart numbers 1 - 10 into pairs in more than one way.**K.OA.A.3**

Essential Question and Enduring Understanding Addressed in this Topic:

Essential Question:
How can addition and subtraction story problems be represented?

Enduring Understanding:
Addition and subtraction story problems can be represented through the use of drawings, objects, and expressions or equations. Knowing the type of story problem (i.e., Put Together, Total Unknown, Put Together/Take Apart, Both Addends Unknown, Add To, Result Unknown, and Take From, Result Unknown) can help us to represent what is happening in the story accurately and find missing information.

In this Topic, students will know:

- Communicate how a representation shows a story problem
- Compare different kinds of story problems
- Some story problems may have multiple solutions (i.e. Put Together/Take Apart, Both Addends Unknown stories)
- Story problems can be represented by expressions or equations

Topic Vocabulary:
Put Together, Total Unknown
Make or Break Apart Numbers (new center)
Put Together/Take Apart, Both Addends Unknown
Math Stories
Take From, Result Unknown

Academic vocabulary:
Story Problem
Retell
Add

	Subtract Counters Connecting Cubes Expression Plus Drawings Equation Solution Counting Sequence
In this Topic, students will be able to: ● Accurately retell a story problem in their own words. ● Use objects or drawings to represent a story problem. ● Explain how objects or drawings represent a story problem. ● Use labels, colors, numbers, or other methods to represent the two groups in a story problem. ● Create their own story problem with a similar context in previous activities	**Plan for Student Reflection:** Student Journal Prompts and Reflection Practices Grade K Unit 5 I Can Self Assessment
	Plan for Teacher Reflection: ● Reviewing formative assessments ● Developing scaffolds ● Collaborative scoring ● PLCs ● Planning for small groups **Teacher Journal Reflection Questions:** **Lesson 5**: In Unit 4, students solved Add To, Result Unknown and Take From, Result Unknown story problems. How did that work prepare students for the work in this lesson? How are Put Together, Total Unknown problems different from the story problems students have worked with? **Lesson 6**: What connections did students make between the Put Together, Total Unknown story problem and the Put Together/Take Apart, Both Addends Unknown story problem? How did acting

	out, representing and solving the Put Together, Total Unknown story problem prepare students to make sense of the Put Together/Take Apart, Both Addends Unknown story problem? **Lesson 7**: Reflect on who participated in math class today. What assumptions are you making about those who did not participate? How can you leverage each of your students' ideas to support them in being seen and heard in tomorrow's math class? **Lesson 8**: In the previous section, students composed and decomposed numbers in multiple ways. How did the work of decomposing numbers in multiple ways prepare students to find more than one solution to a Put Together/Take Apart, Both Addends Unknown story problem? **Lesson 9**: Unlike talking, listening is a difficult thing to observe. At what points in the lesson did you observe students listening to one another's ideas today in class? What indicators do you have that they were listening?

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 - More Types of Story Problems	**Grade Level and Unit: Kindergarten, Unit 4**
Description of Task: Students will create an addition or subtraction story problem with the same context as the story problems from the previous activity. It is likely that students will write Add To, Result Unknown and Take From, Result Unknown story problems. If possible, share a variety of problem types in the activity synthesis/communicate and present.	**Purpose of Task:** The purpose of this task is for students to represent and solve Put Together/Take Apart story problems—first where the total is unknown, and later where both addends are unknown. Students also see equations and learn the term for the first time. Problems where both addends are unknown may be more challenging because there is no action in the story and more than one solution is possible. Students work to find multiple solutions but are not expected to find all the solutions in kindergarten.
Background of Students/Learning Progression: In this section, students continue to represent and solve story problems by using math tools and drawings, and to explain how their representation shows the story. They may use methods such as clearly separating the groups, using 2 colors, or using letter, word, and number labels to make their drawings easier for others to understand. Students also write expressions independently to record the solutions to the story problems. Previously, students have been introduced to story problems and connected an addition or subtraction expression to a matching story problem. They have used drawings and objects to also represent the story problem.	**Ensure all competencies are addressed in the task:** ▢ Yes, all competencies are addressed ▢ No - Task needs modification

Getting Started: In these lessons that make up Topic 2 - Section B of Unit 5, students will be prompted with a numberless story problem from Lesson 5's Warm Up activity. The purpose of this warm up is for students to make sense of a new problem type: Put Together, Total Unknown. The activity will also lead directly into the remainder of Lesson 5.

- Ask students "What do you notice?" "What do you wonder?"
- Have them reflect with a partner.

Section B

IM Lesson	L5 : Put Together	L6 : Red and Yellow Apples	L7 : Solve Both Addends Unknown Story Problems	L8 : More Than One Way	L 9: All of the Story Problems
Learning Cycle Model	**Making Meaning**	**Making Meaning**	**Making Meaning**	**Investigate**	**Create and Produce**
Naugatuck Math Competency	K.OA.1, K.OA.2, K.OA.3, K.OA.4	K.OA.1, K.OA.2, K.OA.3, K.OA.4	K.OA.1, K.OA.2, K.OA.3, K.OA.4	K.OA.1, K.OA.2, K.OA.3, K.OA.4	K.NS.3 K.OA.1, K.OA.2, K.OA.3, K.OA.4
Math Practice Standards	MP 1, MP 2, MP 6	-	MP 4, MP 6	MP 3, MP 7	MP 1, MP 2
Lesson Purpose	The purpose of this lesson is for students to solve Put Together, Total Unknown story problems.	The purpose of this lesson is for students to make sense of Put Together/Take Apart, Both Addends Unknown story problems.	The purpose of this lesson is for students to solve Put Together/Take Apart, Both Addends Unknown story problems.	The purpose of this lesson is for students to find more than one solution to a Put Together/Take Apart, Both Addends Unknown story problem.	The purpose of this lesson is for students to solve addition and subtraction story problems.
Vocabulary Focus	Put together, total, unknown	Put together, take apart, total, unknown, addends, sum	Put together, take apart, total, unknown, addends, sum	Put together, take apart, total, unknown, addends, sum	Put together, take apart, total, unknown, addends, sum
Lesson Materials/ Resources	Lesson 5 Slides Teacher Presentation Materials	Lesson 6 Slides Teacher Presentation Materials	Lesson 7 Slides Teacher Presentation Materials	Lesson 8 Slides Teacher Presentation Materials	Lesson 9 Slides Teacher Presentation Materials

	Student Pages **Activities 1 and 2:** ● Give each group of students access to connecting cubes or two-color counters **Activity 3:** Intro to Make or Break Apart Numbers (Stage 1) ● Give each group of students two-color counters, 1 connecting cube, a number mat, and a dot page. ● Give each student a recording sheet. ● Make or Break Apart Numbers Number Mat 4 - 9 ● Make or Break Apart Numbers Recording Sheet ● Make or Break Apart Numbers Dot Page	Student Pages **Warm-Up:** ● Each student needs access to connecting cubes or two-color counters **Activity 1:** ● Slides **Activity 2:** ● Each student needs access to connecting cubes or two-color counters	Student Pages **Activities 1 and 2:** ● Each student needs access to connecting cubes or two-color counters **Activity 3:** Intro to Math Stories (Stage 3) ● Math Stories Pictures (Stage 3) ● Math Stories Recording Sheet (Stage 3) ● Each group needs access to connecting cubes or two-color counters	Student Pages **Activities 1 and 2:** Each student needs access to connecting cubes or two-color counters **Cool Down:** ● Each student needs access to connecting cubes or two-color counters ● Pencil, crayons, paper ● Cool Down Page	Student Pages **Activities 1 and 2:** ● Each student needs access to connecting cubes or two-color counters
Assessment	**Formative Assessment Strategies: observation, questioning, student discourse.** **See Checkpoint B Document, Checkpoint B Teacher Guide, and Grade K Unit 5 I Can Self Assessment**				
					Section B Practice Problems

Centers Materials	What's Behind My Back? (Stage 1) 5-Frames	What's Behind My Back? (Stage 1) 5-Frames Make or Break Apart Numbers (Stage 1)	What's Behind My Back? (Stage 1) 5-Frames Make or Break Apart Numbers (Stage 1)	What's Behind My Back? (Stage 1) 5-Frames (Stages 1 and 2) Make or Break Apart Numbers (Stage 1) Math Stories (Stage 1-3)	What's Behind My Back? (Stage 1) 5-Frames (Stages 1 and 2) Make or Break Apart Numbers (Stage 1) Math Stories (Stage 1-3)

Making Meaning:

Lesson 5 : Put Together

- The purpose of this lesson is for students to solve Put Together, Total Unknown story problems.
- Lesson 5 Slides
- Teacher Presentation Materials

Lesson 6 : Red and Yellow Apples

- The purpose of this lesson is for students to make sense of Put Together/Take Apart, Both Addends Unknown story problems.
- Lesson 6 Slides
- Teacher Presentation Materials

Lesson 7 : Solve Both Addends Unknown Story Problems

- The purpose of this lesson is for students to solve Put Together/Take Apart, Both Addends Unknown story problems.
- Lesson 7 Slides
- Teacher Presentation Materials

Investigation:

Lesson 8 : More Than One Way

- The purpose of this lesson is for students to find more than one solution to a Put Together/Take Apart, Both Addends Unknown story problem.
- Lesson 8 Slides
- Teacher Presentation Materials

Activities in Lesson 8 best represent investigation as students will explore different types of story problems. They will also connect different representations to solve the story problems in multiple ways.

Create and Produce:

Lesson 9: All of the Story Problems

- The purpose of this lesson is for students to solve addition and subtraction story problems.
- Lesson 9 Slides
- Teacher Presentation Materials

In lesson 9, Activity 2, students will create an addition or subtraction story problem with the same context as the story problems from the previous activity. It is likely that students will write Add To, Result Unknown and Take From, Result Unknown story problems. If possible, share a variety of problem types in the activity synthesis/communicate and present.

Monitor students as they are to also match their story problem with an equation.
Listen for students using the precise vocabulary “put together” “equation” “how many” ”plus”

Communicate and Present:
Invite students to share their stories and expressions with either a partner or as a whole group.

In lesson 9, Activity 2, students will create an addition or subtraction story problem with the same context as the story problems from the previous activity. It is likely that students will write Add To, Result Unknown and Take From, Result Unknown story problems. Share a variety of problem types as you see fit.

Reflection:

- IM Reflection Practices
- Grade K Unit 5 I Can Self Assessment

Notes: Follow lessons in numerical order.

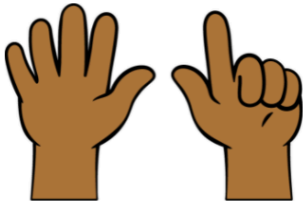
Complete File with Resources and Task:

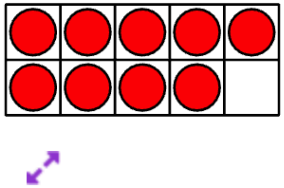
Topic # 3: Section C	Topic Name: Section C - Make and Break Apart 10	Duration: Recommended: 6 days (6 lessons)

Topic Description:

This section focuses exclusively on composing and decomposing 10. This number is foundational to the understanding of place value and the work on numbers and operations in later grades.

Previously, students developed their understanding of the numbers 6–9 by relating it to 5 and using 5-frames. Here, students use a 10-frame—by putting together two 5-frames—and their fingers as tools to represent numbers and make and break apart 10 in different ways. The blank squares in the 10-frame and the fingers that are down allow students to see or count how many more are needed to make 10.





Throughout the section, students continue to build their familiarity with equations. They connect compositions and decompositions of 10 represented on their fingers and on 10-frames to addition equations and write missing numbers in such equations.

$10 = 7 + 3$ $10 = 9 + 1$ $10 = \_\_\_\_ + \_\_\_\_$

Students are not expected to write equations independently in kindergarten. And although students may start to learn combinations that make 10 from memory, fluency with sums of 10 is not required until grade 1.

Section Learning Goals

- For any number from 1 to 9, find the number that makes 10 when added to the given number.

<table>
<tr>
<td>Competencies Addressed:

Understanding and Applying Number Systems

NS.1: I can tell the number of objects using counting and instant visual recognition. K.CC.B.4-5
NS.4: I can name and write numbers 0-20 to represent a group of objects. K.CC.A.3

Operations and Algebraic Thinking

OA.1: I can represent addition within 10 and fluently add within 5. K.OA.A.1, K.OA.A.4, K.OA.A.5
OA.2: I can represent subtraction within 10 and fluently subtract within 5. K.OA.A.1, K.OA.A.5
OA.3: I can solve addition and subtraction word problems within 10. K.OA.A.2
OA.4: I can break apart numbers 1 - 10 into pairs in more than one way.K.OA.A.3</td>
<td>Essential Question and Enduring Understanding Addressed in this Topic:

Essential Question:
What are different ways to show and make 10?

Enduring Understanding:
We can use different strategies (such as using frames, fingers, and objects) to show and make 10.
These strategies help us to see how different parts can be composed into 10.</td>
</tr>
<tr>
<td>In this Topic, students will know:
● A 10 frame can represent any quantity up to 10
● An addition equation represents compositions and decompositions
● There are multiple ways to decompose 10
● How to the number that makes 10 when added to a given number</td>
<td>Topic Vocabulary:
Composition
Decomposition
“Math Fingers, Make 10”
Strategy
Put Together/Take Apart, Both Addends Unknown

Academic vocabulary:
5 Frame
10 Frame
Counters
Equation
Add
Connecting Cubes
Solution</td>
</tr>
<tr>
<td>In this Topic, students will be able to:
● Recognize that a full 10-frame contains 10 counters and that 2 hands have 10 fingers.
● Relate equations to compositions and decompositions of 10.
● Given a number, use the structure of 10-frames or fingers to determine how many more are needed to make 10.
● Given a number, use connecting cubes to determine how many more are needed to make 10.
● Given a number, know how many more are needed to make 10.</td>
<td>Plan for Student Reflection:

Student Journal Prompts and Reflection Practices

Grade K Unit 5 I Can Self Assessment</td>
</tr>
</table>

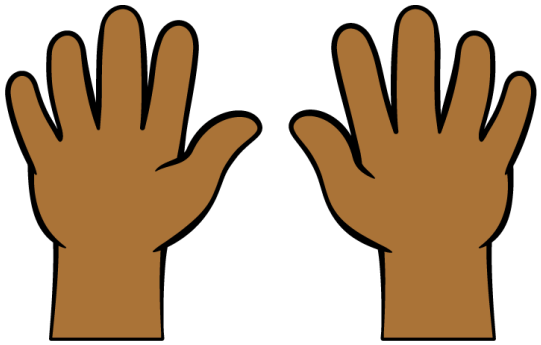
	Plan for Teacher Reflection: ● Reviewing formative assessments ● Developing scaffolds ● Collaborative scoring ● PLCs ● Planning for small groups Teacher Journal Reflection Questions: **Lesson 10**: In the next several lessons, students will find different ways to compose and decompose 10. The structure of the 10-frame can help students organize and understand these compositions and decompositions. How does organizing the counters on the 10-frame from left to right, top to bottom support this work? **Lesson 11**: What makes someone good at math? In what ways are you making assumptions about which of your students are good at math? **Lesson 12**: Reflect on your experience with the Which One Doesn't Belong warm-up in the curriculum. What moves or questions have improved the learning for each or your students during this routine? What improvements would you make next time? **Lesson 13**: What connections did students make between the different strategies shared? What questions did you ask to help make the connections more visible? **Lesson 14**: 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 on in the next unit?

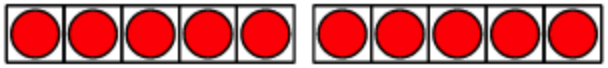
	Lesson 15: What language did students use as they made up their problems? How has the language that students use progressed throughout the unit?

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 - Make and Break Apart 10	**Grade Level and Unit: Kindergarten, Unit 4**
Description of Task: Students will generate Put Together/Take Apart, Both Addends Unknown story problems involving fruit. In the activity synthesis, students select at least one problem to share with a different group in preparation for the next activity. Then, students find all possible solutions to a Put Together/Take Apart, Both Addends Unknown story problem using patterns that were investigated in previous lessons. Students are encouraged to find all possible solutions with a partner.	**Purpose of Task:** The purpose of this task is for students to write and solve their own Put Together/Take Apart, Both Addends Unknown story problems.
Background of Students/Learning Progression: This section focuses exclusively on composing and decomposing 10. This number is foundational to the understanding of place value and the work on numbers and operations in later grades. Students continue to build their familiarity with equations. They connect compositions and decompositions of 10 represented on their fingers and on 10-frames to addition equations and write missing numbers in such equations. Previously, students developed their understanding of the numbers 6–9 by relating it to 5 and using 5-frames. Here, students use a 10-frame—by putting together two 5-frames—and their fingers as tools to represent numbers and make and break apart 10 in different ways. The blank squares in the 10-frame and the fingers that are down allow students to see or count how many more are needed to make 10.	**Ensure all competencies are addressed in the task:** ▢ Yes, all competencies are addressed ▢ No - Task needs modification
Getting Started: In this lessons that make up Topic 3 - Section C of Unit 4, students will be asked to make observations about the following pictures (Warm up from Lesson 10): ● What do you notice? ● What do you wonder? ● How are the fingers and the counters on 5-frames the same?	





Section C

IM Lesson	L 10: Introduce the 10-Frame	L11 : Equations That Show 10	L 12: How Many Are Missing?	L13 : Make 10	L14 : Towers of 10	L 15: Lots of Fruit
Learning Cycle Model	**Making Meaning**	**Making Meaning**	**Making Meaning**	**Making Meaning**	**Investigate**	**Create and Produce**
Naugatuck Math Competency	K.NS.1	K.OA.1, K.OA.2, K.OA.3, K.OA.4	K.OA.1 K.OA.4	K.OA.1	K.NS.4 K.OA.1 K.OA.4	K.OA.1, K.OA.2, K.OA.3, K.OA.4
Math Practice Standards	MP 8	-	MP 8	MP 5, MP 7	MP 5	MP 8
Lesson Purpose	The purpose of this lesson is for students to understand the 10-frame as 2 combined 5-frames and to relate the 10-frame to fingers on two hands.	The purpose of this lesson is for students to connect equations with compositions and decompositions of 10 on 10-frames and fingers.	The purpose of this lesson is for students to compose and decompose 10 in multiple ways and find the number that makes 10 when added to a given number.	The purpose of this lesson is for students to find the number that makes 10 when added to a given number.	The purpose of this lesson is for students to practice finding the number that makes 10 when added to a given number.	The purpose of this lesson is for students to write and solve their own Put Together/Take Apart, Both Addends Unknown story problems.
Vocabulary Focus	10-Frame	Composition, compose, decomposition, decompose	Composition, compose, decomposition, decompose	Missing addend	Missing addend	

Lesson Materials/ Resources	Lesson 10 Slides Teacher Presentation Materials Student Pages **Activity 1:** ● Each student needs glue, scissors and a copy of 5-Frames to cut out **Activity 2:** ● Each group of 2 gets container of two-colored counters ● Numbers on Fingers and 10-frames	Lesson 11 Slides Teacher Presentation Materials Student Pages **Activity 2:** ● Each student needs two different colored crayons	Lesson 12 Slides Teacher Presentation Materials Student Pages **Activities 1 and 2:** ● Each group of 2 needs 1 cup and 10 two-color counters.	Lesson 13 Slides Teacher Presentation Materials Student Pages **Activity 1:** Intro Math Fingers (Stage 4) ● Each group needs container of connecting cubes ● Number Mat 1–9 ● Math Fingers Recording Sheet (Stage 4) **Activity 2:** ● Give students access to two-color counters and 10-frames. **Cool Down:** ● Cool Down Page	Lesson 14 Slides Teacher Presentation Materials Student Pages **Activity 1:** Intro to What's Behind My Back (Stage 2) ● What's Behind My Back Recording Sheet Kindergarten (Stage 2) ● Each group of 2 needs access to connecting cubes, two-colored counters and copies of 10-frames. **Activity 2:** ● Each group of 2 needs access to connecting cubes, two-colored counters and copies of 10-frames.	Lesson 15 Slides Teacher Presentation Materials Student Pages Optional Lesson **Activity 1:** ● Number Mat 4-10 ● Each group of 2 needs access to connecting cubes, two-colored counters **Activity 2:** ● Each group of 2 needs at least 10 two-color counters.
Assessment	**Formative Assessment Strategies: observation, questioning, student discourse.** **See Checkpoint C Document, Checkpoint C Teacher Guide, and Grade K Unit 5 I Can Self Assessment** **Section C - Practice Problems** End of Unit Assessment					

	End of Unit Assessment Teacher Guide					
Centers Materials	Shake and Spill (Stages 1–3) Counting Collections (Stage 1) Roll and Add (Stages 1 and 2)	Shake and Spill (Stages 1–3) Counting Collections (Stage 1) Roll and Add (Stages 1 and 2)	Shake and Spill (Stages 1–3) Counting Collections (Stage 1) Roll and Add (Stages 1 and 2)	Shake and Spill (Stages 1–3) Counting Collections (Stage 1) Roll and Add (Stages 1 and 2)	Shake and Spill (Stages 1–3) Counting Collections (Stage 1) Roll and Add (Stages 1 and 2) Math Fingers (Stages 1-4)	

Making Meaning:

Lesson 10: Introduce the 10-Frame

- The purpose of this lesson is for students to understand the 10-frame as 2 combined 5-frames and to relate the 10-frame to fingers on two hands.
- Lesson 10 Slides
- Teacher Presentation Materials

Lesson 11: Equations That Show 10

- The purpose of this lesson is for students to connect equations with compositions and decompositions of 10 on 10-frames and fingers.
- Lesson 11 Slides
- Teacher Presentation Materials

Lesson 12: How Many Are Missing?

- The purpose of this lesson is for students to compose and decompose 10 in multiple ways and find the number that makes 10 when added to a given number.
- Lesson 12 Slides
- Teacher Presentation Materials

Lesson 13 :Make 10

- The purpose of this lesson is for students to find the number that makes 10 when added to a given number.
- Lesson 13 Slides

- Teacher Presentation Materials

Investigation:

Lesson 14: Towers of 10

- The purpose of this lesson is for students to practice finding the number that makes 10 when added to a given number.
- Lesson 14 Slides
- Teacher Presentation Materials

Activities in Lesson 14 best represent investigation as students are continuing their practice on finding numbers that add up to 10. Both activities 1 and 2 give students multiple opportunities with manipulatives to find multiple ways to make 10.

Create and Produce:

Lesson 15: Lots of Fruit

- The purpose of this lesson is for students to write and solve their own Put Together/Take Apart, Both Addends Unknown story problems.
- Lesson 15 Slides
- Teacher Presentation Materials

In lesson 15, Activity 1, students will generate Put Together/Take Apart, Both Addends Unknown story problems involving fruit. In the activity synthesis, students select at least one problem to share with a different group in preparation for the next activity.
In Lesson 15, Activity 2, students find all possible solutions to a Put Together/Take Apart, Both Addends Unknown story problem using patterns that were investigated in previous lessons. Students are encouraged to find all possible solutions with their partners.

Monitor for students using drawings, numbers, words, or objects to show combinations that match their story problems.
Listen for students using the precise vocabulary “math story”, “how many”, “solution”, “put together”.

Communicate and Present:
Invite students to share their solutions from Lesson 15 and encourage them to record their drawings and solutions systematically. Pair students with a different partner than in the previous activity.

Record each student solution with an equation.

Reflection:

- IM Reflection Practices
- Grade K Unit 5 I Can Self Assessment

Notes: Follow lessons in numerical order.	Complete File with Resources and Task: