

Course Title: Mathematics	Full Year	Required
<p>Course Description:</p> <p>The mathematical work for grade 3 is partitioned into 8 units:</p> <ol style="list-style-type: none"> 1. Introducing Multiplication 2. Area and Multiplication 3. Wrapping Up Addition and Subtraction within 1,000 4. Relating Multiplication to Division 5. Fractions as Numbers 6. Measuring Length, Time, Liquid Volume, and Weight 7. Two-dimensional Shapes and Perimeter 8. Putting it All Together 		
<p>Additional Course Information:</p> <p>The big ideas in grade 3 include:</p> <ul style="list-style-type: none"> ● developing understanding of multiplication and division and strategies for multiplication and division within 100 ● developing understanding of fractions, especially unit fractions (fractions with numerator 1) ● developing understanding of the structure of rectangular arrays and of area ● describing and analyzing two-dimensional shapes 	<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 Overview - FOCUS:

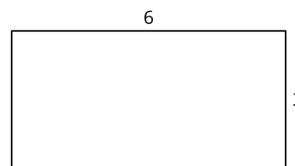
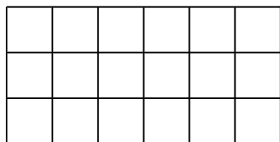
In this unit, students encounter the concept of area, relate the area of rectangles to multiplication, and solve problems involving area.

In this unit, students make sense of another attribute of shapes: a measure of how much a shape covers. They begin informally, by comparing two shapes and deciding which one covers more space. Later, they compare more precisely by tiling shapes with pattern blocks and square tiles. Students learn that the area of a flat figure is the number of square units that cover it without gaps or overlaps.

Students then focus on the area of rectangles. They notice that a rectangle tiled with squares forms an array, with the rows and columns as equal-size groups. This observation allows them to connect the area of rectangles to multiplication—as a product of the number of rows and number of squares per row.

To transition from counting to multiplying side lengths, students reason about area using increasingly more abstract representations. They begin with tiled or gridded rectangles, move to partially gridded rectangles or those with marked sides, and end with rectangles labeled with their side lengths.

$$6 \times 3 = 18$$



Students also learn some standard units of area—square inches, square centimeters, square feet, and square meters—and solve real-world problems involving area of rectangles.

Later in the unit, students find the area and missing side lengths of figures composed of non-overlapping rectangles. This work includes cases with two non-overlapping rectangles sharing one

Topic Titles:

- Section A: Concepts of Area Measurement
 - Describe area as the number of unit squares that cover a plane figure without gaps and overlaps.
 - Measure the area of rectangles by counting unit squares.
- Section B: Relate Area to Multiplication
 - Explain why the area of a rectangle can be determined by multiplying the side lengths.
 - Solve problems involving the area of rectangles.
- Section C: Find Area of Figures Composed of Rectangles
 - Find the area of figures composed of rectangles.

<p>side of the same length, which lays the groundwork for understanding the distributive property of multiplication in a later unit.</p>		
<p>Coherence: How does this unit build on and connect to prior knowledge and learning? In grade 2, students explored attributes of shapes, such as number of sides, number of vertices, and length of sides. They measured and compared lengths (including side lengths of shapes). In grade 2, students estimated, measured, and compared lengths using standard units. They learned how the length of the unit affects measurements.</p> <p>Concepts in grade 2 are essential as they utilize this knowledge to begin to informally compare different shapes and their attributes. As the unit progresses, students will begin to compare how different shapes cover more or less space. The idea of covering space leads students to the understanding of area, in which multiplication is needed.</p>		
<p>Essential Questions:</p> <ol style="list-style-type: none"> 1. How can shapes be recognized, described and compared? 2. How can we determine how much space is within a shape? 	<p>Enduring Understanding:</p> <ul style="list-style-type: none"> ● In order to identify, describe and compare shapes, we must understand the unique attributes of individual shapes. A shape can be identified by the number of sides, vertices or angles. We can also compare shapes by the amount of space that is inside the shape. ● Different shapes cover different amounts of space. We can use our knowledge of the different attributes of shapes to determine how much space is inside the shape. Information such as side lengths and how a shape is composed can be helpful in determining the area of a shape. 	
<p>What Students Will Know:</p> <ul style="list-style-type: none"> ● How to find the area of a rectangle ● Unit squares are the same size ● Arrays with unit squares can be used to solve multiplication equations involving area ● How to use unit squares to measure area ● Why multiplying the side lengths of a 	<p>What students will do:</p> <ul style="list-style-type: none"> ● Describe the relative size of plane figures in their own language. ● Explore area by building shapes with unit squares. ● Explain that rectangles that can be covered by the same number of unit squares without gaps or overlaps have the same area. ● Find the area of rectangles (within 24 square units) by counting unit squares. ● Describe and represent the area of a rectangle 	<p>Unit Specific Vocabulary:</p> <p>Academic vocabulary area (Lessons 3 & 4) square centimeter (Lesson 6) square inch (Lesson 6) square foot (Lesson 7) square meter (Lesson 7) parentheses (Lesson 12)</p>

rectangle is its area.

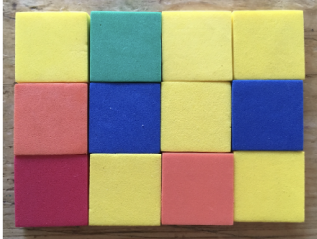
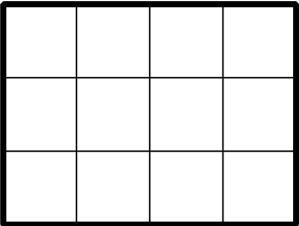
- Different ways to solve problems involving the area of rectangles.
- When calculating area, the answer is in square feet, square centimeter, square foot or square meter.

as the total number of unit squares arranged in equal groups of rows and columns.

- Find the area of rectangles (within 60 square units) by counting unit squares.
- Relate multiplication to finding the area of rectangles.
- Describe square units based on different linear units of measurement.
- Use square inches and square centimeters to measure the area of a rectangle.
- Use square feet and square meters to measure the area of a rectangle.
- Determine the area of rectangles not displayed on a grid.
- Find the area of rectangles by measuring and multiplying the side lengths.
- Solve real-world and mathematical problems involving area.
- Explore connections between area and the multiplication table.
- Find the area of figures composed of rectangles.
- Recognize that area is additive.
- Calculate the area of un-gridded figures made of rectangles using multiplication and addition.
- Calculate the area of un-gridded figures composed of rectangles, including figures with missing side lengths.
- Solve problems involving the area of un-gridded figures composed of rectangles, including figures with missing side lengths.
- Relate multiplication to finding the area of rectangles.
- Describe square units based on different linear units of measurement.
- Use square inches and square centimeters to

	<p>measure the area of a rectangle.</p> <ul style="list-style-type: none">● Use square feet and square meters to measure the area of a rectangle.● Determine the area of rectangles not displayed on a grid.● Find the area of rectangles by measuring and multiplying the side lengths.● Solve real-world and mathematical problems involving area.● Explore connections between area and the multiplication table.● Find the area of figures composed of rectangles.● Recognize that area is additive.● Calculate the area of un-gridded figures made of rectangles using multiplication and addition.● Calculate the area of un-gridded figures composed of rectangles, including figures with missing side lengths.● Solve problems involving the area of un-gridded figures composed of rectangles, including figures with missing side lengths.● Figures can be decomposed into non-overlapping rectangles.● Opposite sides in rectangles are equal● Area is additive● Parentheses are grouping symbols that can be used in expressions and equations	
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<p>Entry Level Assessment and Connection to Unit: 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: Look for opportunities to connect measurement attributes such as area, square centimeter, square inch, square foot, and square meter in science lessons. Such opportunities can include activities where students are measuring different shapes utilizing different measurements and finding the area of the shape.</p>	
<p>Any links, attachments and resources:</p> <p>Instructional Routines Document Family Support Materials</p>	<p>Planning Ideas:</p> <p>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</p>

Topic # 1 (Section A)	Topic Name: Section A - Concepts of Area Measurement	Duration: Recommended: 4 days
<p>Topic Description: In this section, students reason about area as an attribute of two-dimensional shapes and develop a sense of area as the amount of space covered by a shape.</p> <p>They begin by considering how to show or explain a shape as being larger or smaller than another. Next, they see that they can quantify the size of shapes more precisely by covering them with units of the same size, such as pattern blocks or square tiles.</p> <div style="text-align: center;">   </div> <p>Students then learn that the area of a shape is the number of squares that covers it with no gaps or overlaps. To find the number of square tiles used to cover a space, students may skip-count or use multiplication.</p> <p>Section Learning Goals</p> <ul style="list-style-type: none"> • Describe area as the number of unit squares that cover a plane figure without gaps and overlaps. • Measure the area of rectangles by counting unit squares. 		
<p>Competencies Addressed: 3.MD.C.5, 3.MD.C.5.a, 3.MD.C.5.b, 3.MD.C.6, 3.OA.A.1</p> <p>Operations and Algebraic Thinking Indicator 2 - I can represent and interpret multiplication and division expressions.</p> <p>Measurement and Data Investigations Indicator 4 - I understand and can apply concepts of area and perimeter.</p>		<p>Essential Question and Enduring Understanding Addressed in this Topic:</p> <p>Essential Question How can shapes be recognized, described and compared?</p> <p>Enduring Understanding</p>

	<p>In order to identify, describe and compare shapes, we must understand the unique attributes of individual shapes. A shape can be identified by the number of sides, vertices or angles. We can also compare shapes by the amount of space that is inside the shape.</p>
<p>In this Topic, students will know:</p> <ul style="list-style-type: none"> ● How to find the area of a rectangle ● Unit squares are the same size ● Arrays with unit squares can be used to solve multiplication equations involving area ● How to use unit squares to measure area 	<p>Topic Vocabulary:</p> <p>Academic vocabulary area (Lessons 3 & 4)</p>
<p>In this Topic, students will be able to:</p> <ul style="list-style-type: none"> ● Describe the relative size of plane figures in their own language. ● Explore area by building shapes with unit squares. ● Explain that rectangles that can be covered by the same number of unit squares without gaps or overlaps have the same area. ● Find the area of rectangles (within 24 square units) by counting unit squares. ● Describe and represent the area of a rectangle as the total number of unit squares arranged in equal groups of rows and columns. ● Find the area of rectangles (within 60 square units) by counting unit squares. 	<p>Plan for Student Reflection:</p> <p>Student Journal Prompts and Reflection Practices</p> <hr/> <p>Plan for Teacher Reflection:</p> <ul style="list-style-type: none"> ● Reviewing formative assessments ● Developing scaffolds ● Collaborative scoring ● PLCs ● Planning for small groups ● Teacher Reflection Prompts in Teacher Guides

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 - Concepts of Area Measurement	Grade Level and Unit: Grade 3, Unit 2
Description of Task: Students will describe and represent the area of a rectangle as the total number of unit squares arranged in equal groups of rows and columns. They will find the area of rectangles (within 60 square units) by counting unit squares. Students will also explain that rectangles that can be covered by the same number of unit squares without gaps or overlaps have the same area. They will find the area of rectangles (within 24 square units) by counting unit squares.	Purpose of Task: The purpose of this task is for students to measure area by counting square tiles and creating rectangles with a given area. Students will continue to count squares to create rectangles and to find the area of rectangles with larger numbers.
Background of Students/Learning Progression: In previous lessons, students identified equal groups in the rows and columns of arrays. In grade 2, students estimated, measured, and compared lengths using standard units. They learned how the length of the unit affects measurements. Previously, students compared the area of shapes informally—by cutting out and overlaying the shapes, by observing whether one shape would fit into another, and by covering the shapes with pattern blocks and comparing the number of blocks used. In previous lessons, students learned that counting square tiles that cover a figure gives the area of the figure in square units.	Ensure all competencies are addressed in the task: <input type="checkbox"/> Yes, all competencies are addressed <input type="checkbox"/> No - Task needs modification
Getting Started: Lesson 1: What is Area? (Warm-up and Activity 1) <ul style="list-style-type: none">• The purpose of this lesson is for students to recognize that different shapes cover different amounts of space.• Teacher presentation materials• Slides <p>In the warm-up, How Many Do You See: Arrays, the purpose is for students to subitize or use grouping strategies to describe the images they see. Students may see equal groups in the rows or the columns of the array. Recording the equations for each way of seeing the groups is an opportunity to reinforce the commutative property.</p> <p>When students use different ways to group dots within the same array to find the total number of dots they look for and make use of structure (MP7).</p>	

The purpose of activity 1, Compare Shapes, is for students to compare shapes to decide which is larger. Given their prior experiences with length, students may initially use length to reason about what it means for a shape to be larger than another shape. The synthesis should bring out the idea that length alone is not enough to compare two-dimensional shapes. Ideas around how much space the shapes cover should be emphasized. If students disagree about which shape is larger, encourage them to share their reasoning so that the class can consider multiple ideas and come to a resolution together (MP3).

Section A

IM Lesson	L1: What is Area?	L2: How Do We Measure Area?	L3: Tile Rectangles	L4: Area of Rectangles
Learning Cycle Model	Making Meaning	Investigate	Create and Produce	Create and Produce
Naugatuck Math Competency	3.MD.4, 3.OA.2	3.MD.4	3.MD.4	3.MD.4
Math Practice Standards	MP 3	MP 6	MP 6, 7	MP 6, 7
Lesson Purpose	The purpose of this lesson is for students to recognize that different shapes cover different amounts of space.	The purpose of this lesson is for students to use square tiles to build shapes and measure area.	The purpose of this lesson is for students to measure area by counting square tiles and create rectangles with a given area.	The purpose of this lesson is for students to continue to count squares to create rectangles and to find the area of rectangles with larger numbers than in the previous lesson.
Teacher Facing Learning Goal	Describe the relative size of plane figures in their own language.	<ul style="list-style-type: none"> Explore area by building shapes with unit squares. Use unit squares to measure area. 	<ul style="list-style-type: none"> Explain that rectangles that can be covered by the same number of unit squares without gaps or overlaps have the same area. Find the area of rectangles (within 24 square units) by counting unit squares. 	<ul style="list-style-type: none"> Describe and represent the area of a rectangle as the total number of unit squares arranged in equal groups of rows and columns. Find the area of rectangles (within 60 square units) by counting unit squares.
Vocabulary Focus			area	area
Lesson Materials/ Resources	Lesson 1 Slides Teacher Presentation Materials Student Pages	Lesson 2 Slides Teacher Presentation Materials Student Pages	Lesson 3 Slides Teacher Presentation Materials Student Pages	Lesson 4 Slides Teacher Presentation Materials Student Pages

	<p>Activity 1:</p> <ul style="list-style-type: none"> Comparing shapes - students will need scissors <p>Activity 2:</p> <ul style="list-style-type: none"> Each group of 2 needs at least 2 hexagons and trapezoids, 4 squares and rhombuses, and 8 triangles. Pattern Blocks to Compare Shapes 	<p>Activity 1:</p> <ul style="list-style-type: none"> Each group of 4 needs 80 square tiles. <p>Activity 2:</p> <ul style="list-style-type: none"> Each group of 2 needs 80 square tiles. Use Square Tiles to Measure Area 	<p>Activity 1:</p> <ul style="list-style-type: none"> Each group of 2 needs 24 square tiles. Time to Tile (1 per student) <p>Activity 2: Each group of 2 needs a card sort</p> <ul style="list-style-type: none"> Card Sort: Rectangles 	<p>Activity 1:</p> <ul style="list-style-type: none"> Each group of 2 needs one folder. <p>Activity 2:</p> <ul style="list-style-type: none"> (Student pages in the book)
	Cooldown: Compare Area	Cooldown: Tile and Tell	Cooldown: Tile a Rectangle	Cooldown: What's the Area?
Additional Resource: Section A Practice Problems				
Assessment	Formative Assessment Strategies: observation, questioning, student discourse: Monitoring Sheet See Section A Checkpoint Assessment , Section A Checkpoint Teacher's Guide			
Centers Materials	<ul style="list-style-type: none"> Can You Build It? (3–5), Stage 1: Rectangles (Addressing) Five in a Row: Multiplication (3–5), Stage 1: Factors 1–5 and 10 (Supporting) 	<ul style="list-style-type: none"> Can You Build It? (3–5), Stage 1: Rectangles (Addressing) Five in a Row: Multiplication (3–5), Stage 1: Factors 1–5 and 10 (Supporting) 	<ul style="list-style-type: none"> Can You Build It? (3–5), Stage 1: Rectangles (Addressing) Five in a Row: Multiplication (3–5), Stage 1: Factors 1–5 and 10 (Supporting) 	<ul style="list-style-type: none"> Can You Build It? (3–5), Stage 1: Rectangles (Addressing) Five in a Row: Multiplication (3–5), Stage 1: Factors 1–5 and 10 (Supporting)

Making Meaning:

[Lesson 1: What is Area?](#): Activity 2 and Synthesis

- The purpose of this lesson is for students to recognize that different shapes cover different amounts of space.
- [Teacher presentation materials](#)

- [Slides](#)

Investigate:

[Lesson 2: How Do We Measure Area?](#)

- The purpose of this lesson is for students to use square tiles to build shapes and measure area.
- [Teacher presentation materials](#)
- [Slides](#)

Create and Produce:

[Lesson 3: Tile Rectangles](#)

- The purpose of this lesson is for students to measure area by counting square tiles and create rectangles with a given area.
- [Teacher presentation materials](#)
- [Slides](#)

[Lesson 4: Area of Rectangles](#)

- The purpose of this lesson is for students to continue to count squares to create rectangles and to find the area of rectangles with larger numbers than in the previous lesson.
- [Teacher presentation materials](#)
- [Slides](#)

Communicate and Present:

“If someone told you four squares would fit across the top of the rectangle, but only three squares would fit across the bottom of the rectangle, how would you know this didn’t make sense?” (The top and bottom have the same length so they should fit the same number of squares.)

“What helpful features do rectangles have that help us find their area?”

Reflection:

“Describe area in your own words. How can we measure area? What lingering questions do you have about area?”

Notes: Follow lessons in numerical order.

Complete File with Resources and Task:

Task-Based Learning Plan Format for Topic 1

Topic # 2 (Section B)	Topic Name: Section B - Relate Area to Multiplication	Duration: Recommended: 7 days
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Topic Description:
 In this section, students relate the area of rectangles to multiplication expressions.

Students see equal-size groups in rectangles that are tiled with squares. They learn to express the area of rectangles as a product of two numbers that describe the equal groups. For example, in a rectangle that is 8 units by 4 units, students see 8 groups of 4 or 4 groups of 8. The product of the two numbers, 8×4 or 4×8 , gives the number of squares that covers a rectangle completely with no gaps or overlaps.

Use of the structure of a rectangle enables students to transition from gridded rectangles to rectangles showing only side lengths (MP7). The progression in visual representations matches the progression in strategies for reasoning about area: moving from concrete (counting) to abstract (finding products of two numbers).

In this section, students also learn about standard units of area in inches, feet, centimeters, and meters. They explore these units in the context of real-world and mathematical problems.

Section Learning Goals

- Explain why the area of a rectangle can be determined by multiplying the side lengths.
- Solve problems involving the area of rectangles.

<p>Competencies Addressed: 3.MD.C.6, 3.MD.C.7.b, 3.OA.B.5, 3.OA.D.9</p> <p>Operations and Algebraic Thinking</p> <p>Indicator 1 - I can analyze and explain patterns.</p> <p>Indicator 3- I can apply the properties of operations to multiply and divide.</p>	<p>Essential Question and Enduring Understanding Addressed in this Topic:</p> <p>Essential Question How can we determine how much space is within a shape?</p>
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<p>Measurement and Data Investigations</p> <p>Indicator 4 - I understand and can apply concepts of area and perimeter.</p>	<p>Enduring Understanding</p> <p>Different shapes cover different amounts of space. We can use our knowledge of the different attributes of shapes to determine how much space is inside the shape. Information such as side lengths and how a shape is composed can be helpful in determining the area of a shape.</p>
<p>In this Topic, students will know:</p> <ul style="list-style-type: none"> ● Why multiplying the side lengths of a rectangle is its area. ● Different ways to solve problems involving the area of rectangles. ● When calculating area, the answer is in square feet, square centimeter, square foot or square meter. 	<p>Topic Vocabulary:</p> <p>Academic vocabulary square centimeter (Lesson 6) square inch (Lesson 6) square foot (Lesson 7) square meter (Lesson 7)</p>
<p>In this Topic, students will be able to:</p> <ul style="list-style-type: none"> ● Relate multiplication to finding the area of rectangles. ● Describe square units based on different linear units of measurement. ● Use square inches and square centimeters to measure the area of a rectangle. ● Use square feet and square meters to measure the area of a rectangle. ● Determine the area of rectangles not displayed on a grid. ● Find the area of rectangles by measuring and multiplying the side lengths. ● Solve real-world and mathematical problems involving area. ● Explore connections between area and the multiplication table. 	<p>Plan for Student Reflection:</p> <p>Student Journal Prompts and Reflection Practices</p> <hr/> <p>Plan for Teacher Reflection:</p> <ul style="list-style-type: none"> ● Reviewing formative assessments ● Developing scaffolds ● Collaborative scoring ● PLCs ● Planning for small groups ● Teacher Reflection Prompts in Teacher Guides

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 - Relate Area to Multiplication	Grade Level and Unit: Grade 1, Unit
Description of Task: The problems in this lesson are about a community garden. Students might draw squares within rectangles, draw tick marks on side lengths, count groups, or multiply to find area in this lesson. Any reasoning that makes sense to them is acceptable.	Purpose of Task: The purpose of this lesson is for students to solve problems involving area.
Background of Students/Learning Progression: In previous lessons, students found the area of rectangles with tiles, grids, partial grids, or linear measurements marked along the sides of the rectangle. Students also used rulers to find the area of rectangles.	Ensure all competencies are addressed in the task: <input type="checkbox"/> Yes, all competencies are addressed <input type="checkbox"/> No - Task needs modification
Getting Started: Lesson 5: Represent Products as Areas <ul style="list-style-type: none">• The purpose of this lesson is for students to connect multiplication expressions to rectangular areas.• Teacher presentation materials• Slides	

Section B

IM Lesson	L5: Represent Products as Areas	L6: Different Square Units (Part 1)	L7: Different Square Units (Part 2)	L8: Area of Rectangles Without a Grid	L9: Measure to Find the Area	L10: Solve Area Problems	L11: Area and the Multiplication Table
Learning Cycle Model	Getting started	Making Meaning	Making Meaning	Investigation	Investigation	Create and Produce	Create and Produce
Naugatuck Math Competency	3.MD.4, 3.OA.3	3.MD.4	3.MD.4	3.MD.4, 3.OA.3	3.MD.4, 3.OA.3	3.MD.4, 3.OA.3	3.MD.4, 3.OA.1, 3.OA.3
Math Practice Standards	MP 2	MP 6		MP 7	MP 7	MP 1, 3	
Lesson Purpose	The purpose of this lesson is for students to connect multiplication expressions to rectangular areas.	The purpose of this lesson is for students to learn that there are different units that can be used to measure area, specifically square centimeters and square inches.	The purpose of this lesson is for students to learn about square feet and square meters, and consider when these larger units can be helpful to measure area.	The purpose of this lesson is for students to measure side lengths of rectangles to find their area.	The purpose of this lesson is for students to measure side lengths of rectangles to find their area.	The purpose of this lesson is for students to solve problems involving area.	The purpose of this lesson is for students to explore connections between area and the multiplication table.
Vocabulary Focus		square centimeter square inch	square foot square meter				
Lesson Materials/ Resources	Lesson 5 Slides Teacher Materials Student Pages Activity 1: Match Expressions and Area Activity 2: Each group of two will need Inch Tiles	Lesson 6 Slides Teacher Materials Student Pages Activity 1 and 2: <ul style="list-style-type: none"> Prepare additional copies of the grids from Same rectangle. 	Lesson 7 Slides Teacher Materials Student Pages Activity 1: Create square foot and square meter units made from rulers, meter sticks, and rubber bands.	Lesson 8 Slides Teacher Materials Student Pages Activity 1: Use tiles to find the area of a rectangle. Activity 2: Each group of 4	Lesson 9 Slides Teacher Materials Student Pages Activity 1: Students will measure the side lengths of a rectangle and multiply them to find the area.	Lesson 10 Slides Teacher Materials Student Pages Activity 1: Students solve a real-world problem involving area. Activity 2:	Lesson 11 Slides Teacher Materials Student Pages Activity 1: Students find missing products in the multiplication table as they consider the

		<p>different units so students can have a fresh copy to measure the area of the square.</p> <ul style="list-style-type: none"> • Have patty paper available, in case requested. 	<p>Activity 2: Gather examples of a square centimeter and a square inch from a previous lesson, and examples of a square meter and a square foot from the previous activity.</p>	<p>will need one roll of either painter's tape or masking tape.</p> <p>Materials to Gather Rulers (centimeters) Rulers (inches) Tape (painter's or masking) Yardsticks</p>	<p>Activity 2: Each group of 4 will need one roll of either painter's tape or masking tape.</p> <p>Materials to Gather Rulers (centimeters) Rulers (inches) Tape (painter's or masking) Yardsticks</p>	<p>Students solve an area problem that involves missing side lengths.</p> <p>Materials to Gather Inch Tiles Tools for creating a visual display</p> <p>Materials to Copy Centimeter Grid Paper - Standard</p>	<p>rectangular structure of how products are organized in the table.</p> <p>Activity 2: Students find products in the multiplication table.</p>
	Cooldown: Create a Rectangular Area	Cooldown: Which Square?	Cooldown: Square Feet?	Cooldown: Where are the Squares?	Cooldown: Find the Area	Cooldown: How Much Fabric?	Cooldown: What's the Product?
Additional Resource: Section B Practice Problems							
Assessment	Formative Assessment Strategies: observation, questioning, student discourse: Monitoring Sheet See Section B Checkpoint Assessment, Section B Checkpoint Teacher's Guide						
Centers Materials	<ul style="list-style-type: none"> • Capture Squares (1–3), Stage 6: Multiply with 1–5 (Addressing) • Rectangle Rumble (3–5), Stage 1: Factors 1, 2, 5, and 10 (Addressing) 	<ul style="list-style-type: none"> • Capture Squares (1–3), Stage 6: Multiply with 1–5 (Addressing) • Rectangle Rumble (3–5), Stage 1: Factors 1, 2, 5, and 10 (Addressing) • Five in a Row: Addition and Subtraction (1–2), Stage 6: Add within 100 	<ul style="list-style-type: none"> • Capture Squares (1–3), Stage 6: Multiply with 1–5 (Addressing) • Rectangle Rumble (3–5), Stage 1: Factors 1, 2, 5, and 10 (Addressing) • Five in a Row: Addition and Subtraction (1–2), Stage 6: Add within 100 	<ul style="list-style-type: none"> • Capture Squares (1–3), Stage 6: Multiply with 1–5 (Addressing) • Rectangle Rumble (3–5), Stage 1: Factors 1, 2, 5, and 10 (Addressing) • Five in a Row: Addition and Subtraction (1–2), Stage 7: Add within 	<ul style="list-style-type: none"> • Capture Squares (1–3), Stage 6: Multiply with 1–5 (Addressing) • Rectangle Rumble (3–5), Stage 2: Factors 1–5 (Addressing) • Five in a Row: Addition and Subtraction (1–2), Stage 7: Add within 1,000 without 	<ul style="list-style-type: none"> • Capture Squares (1–3), Stage 6: Multiply with 1–5 (Addressing) • Rectangle Rumble (3–5), Stage 2: Factors 1–5 (Addressing) • Five in a Row: Addition and Subtraction (1–2), Stage 7: Add within 1,000 without 	<ul style="list-style-type: none"> • Capture Squares (1–3), Stage 6: Multiply with 1–5 (Addressing) • Rectangle Rumble (3–5), Stage 2: Factors 1–5 (Addressing) • Five in a Row: Addition and Subtraction (1–2), Stage 7: Add within 1,000 without

		with Composing (Supporting)	with Composing (Supporting)	1,000 without Composing (Supporting)	Composing (Supporting)	Composing (Supporting)	Composing (Supporting)
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Making Meaning:

[Lesson 6: Different Square Units \(Part 1\)](#)

- The purpose of this lesson is for students to learn that there are different units that can be used to measure area, specifically square centimeters and square inches.
- [Teacher presentation materials](#)
- [Slides](#)

[Lesson 7: Different Square Units \(Part 2\)](#)

- The purpose of this lesson is for students to learn about square feet and square meters, and consider when these larger units can be helpful to measure area.
- [Teacher presentation materials](#)
- [Slides](#)

Checkpoints: These documents for the above lessons provide teachers with a template for collecting data and information on student understanding of skills and concepts.

[Checkpoint B: Assessment](#)

[Checkpoint B: Teacher Guide](#)

Investigate:

[Lesson 8: Area of Rectangles Without a Grid](#)

- The purpose of this lesson is for students to determine the area of rectangles that are not fully gridded with squares.

- [Teacher presentation materials](#)
- [Slides](#)

[Lesson 9: Measure to Find the Area](#)

- The purpose of this lesson is for students to measure side lengths of rectangles to find their area.
- [Teacher presentation materials](#)
- [Slides](#)

Create and Produce:

[Lesson 10: Solve Area Problems](#)

- The purpose of this lesson is for students to solve problems involving area.
- [Teacher presentation materials](#)
- [Slides](#)

[Lesson 11: Area and the Multiplication Table](#)

- The purpose of this lesson is for students to explore connections between area and the multiplication table.
- [Teacher presentation materials](#)
- [Slides](#)

Communicate and Present:

“Tell me about what you’ve done so far to solve the problem.”

“How could you represent the problem?”

Ask half of the groups to stand with their poster and share their ideas or answer questions as the other half visit their posters.

Reflection:

Lesson 5:

In previous lessons students worked with arrays as a way to represent multiplication. How did students’ previous work with arrays support them in representing products as rectangular areas?

Lesson 6:

What question do you wish you had asked today? When and why should you have asked it?

Lesson 7:

In what ways can you connect the math in today’s lesson to student’s lived experience?

Lesson 8:

How did students change their method for finding area when they saw rectangles that were partially tiled or that showed only tick marks along two sides?

	<p>Lesson 9: Identify ways the math community you are fostering is going well. What aspects would you like to work on? What actions can you take to improve those areas?</p> <p>Lesson 10: Which question did you ask today that best supported students' understanding of area within a context? What did students say or do that showed the question was effective?</p> <p>Lesson 11: Which multiplication facts did students seem most confident in as they found products in the multiplication table? For ones they did not know right away, what strategy did they go to?</p>
<p>Notes: Follow the lessons in numerical order.</p>	<p>Complete File with Resources and Task:</p> <p>Task-Based Learning Plan Format for Topic 2</p>

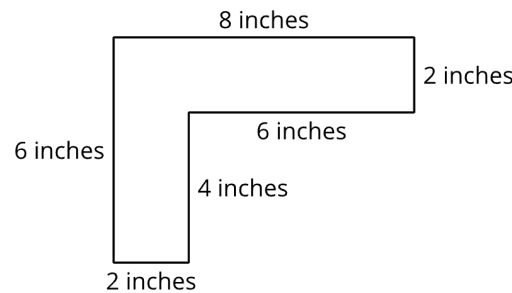
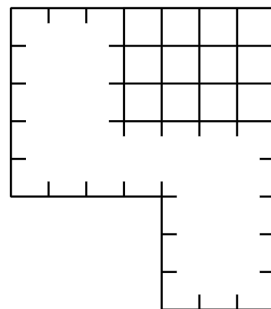
Topic # 3 (Section C)	Topic Name: Section C - Find Area of Figures Composed of Rectangles	Duration: Recommended: 4 days
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Topic Description:

In this section, students encounter figures composed of non-overlapping rectangles and find their area.

As with the rectangles in earlier lessons, students see increasingly abstract diagrams, starting with figures that are fully gridded, moving to those with a partial grid, and ending with figures showing only side lengths and no grid. The progression encourages students to decompose the figures and use multiplication to reason about area. The work here highlights the additive nature of area.

Students also use their understanding of rectangles (that opposite sides are equal) to find missing side lengths in figures composed of rectangles.



Section Learning Goals

- Find the area of figures composed of rectangles.

Competencies Addressed: 3.MD.C.5, 3.MD.C.6, 3.MD.C.7.b, 3.MD.C.7.d, 3.NBT.A.2

Understanding and Applying Number Systems

Indicator 5 - I can use my understanding of place value and properties of operations to add and subtract whole numbers.

Essential Question and Enduring Understanding Addressed in this Topic:

Essential Question

How can we determine how much space is within a shape?

<p>Measurement and Data Investigations</p> <p>Indicator 4 - I understand and can apply concepts of area and perimeter.</p>	<p>Enduring Understanding</p> <p>Different shapes cover different amounts of space. We can use our knowledge of the different attributes of shapes to determine how much space is inside the shape. Information such as side lengths and how a shape is composed can be helpful in determining the area of a shape.</p>
<p>In this Topic, students will know:</p> <ul style="list-style-type: none"> ● Figures can be decomposed into non-overlapping rectangles. ● Opposite sides in rectangles are equal ● Area is additive ● Parentheses are grouping symbols that can be used in expressions and equations 	<p>Topic Vocabulary:</p> <p>Academic vocabulary parentheses (Lesson 12)</p>
<p>In this Topic, students will be able to:</p> <ul style="list-style-type: none"> ● Find the area of figures composed of rectangles. ● Recognize that area is additive. ● Calculate the area of un-gridded figures made of rectangles using multiplication and addition. ● Calculate the area of un-gridded figures composed of rectangles, including figures with missing side lengths. ● Solve problems involving the area of un-gridded figures composed of rectangles, including figures with missing side lengths. 	<p>Plan for Student Reflection:</p> <p>Student Journal Prompts and Reflection Practices</p> <hr/> <p>Plan for Teacher Reflection:</p> <ul style="list-style-type: none"> ● Reviewing formative assessments ● Developing scaffolds ● Collaborative scoring ● PLCs ● Planning for small groups ● Teacher Reflection Prompts in Teacher Guides

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 - Find Area of Figures Composed of Rectangles	Grade Level and Unit: Grade 3, Unit 3
Description of Task: Students find missing side lengths of a room and use their knowledge about areas of rectangles to solve a problem about fitting a bed and desk into a room. As students make decisions, they consider what space is really usable in the room or what is the best spot in the room for each piece of furniture.	Purpose of Task: The purpose of this lesson is for students to use their experience with areas of figures composed of rectangles to solve problems.
Background of Students/Learning Progression: In previous lessons, students solved rectangular area problems. They connected area problems to multiplication. They learned that area is additive as they found the area of figures composed of rectangles by decomposing them into non-overlapping rectangles.	Ensure all competencies are addressed in the task: <input type="checkbox"/> Yes, all competencies are addressed <input type="checkbox"/> No - Task needs modification
Getting Started: Lesson 12: Area and Addition <ul style="list-style-type: none">• The purpose of this lesson is for students to use gridded rectangles to learn that area is additive.• Teacher presentation materials• Slides	

Section C

IM Lesson	L12: Area and Addition	L13: Find the Area of Figures	L14: Find the Area of Figures with Missing Sides	L15: New Room
Learning Cycle Model	Getting Started	Making Meaning	Investigation	Create and Produce
Naugatuck Math Competency	3.MD.4	3.MD.4, 3.NS.5	3.MD.4	3.MD.4
Math Practice Standards	MP 3, 7	MP 2	MP 3	
Lesson Purpose	The purpose of this lesson is for students to use gridded rectangles to learn that area is additive.	The purpose of this lesson is for students to calculate the area of un-gridded figures made of rectangles using multiplication and addition.	The purpose of this lesson is for students to calculate the area of un-gridded figures made of rectangles, including figures with missing side lengths.	The purpose of this lesson is for students to use their experience with areas of figures composed of rectangles to solve problems.
Teacher Facing Learning Goal	<ul style="list-style-type: none"> Find the area of figures composed of rectangles. Recognize that area is additive. 	Calculate the area of un-gridded figures made of rectangles using multiplication and addition.	Calculate the area of un-gridded figures composed of rectangles, including figures with missing side lengths.	Solve problems involving the area of un-gridded figures composed of rectangles, including figures with missing side lengths.
Vocabulary Focus	parentheses			
Lesson Materials/Resources	<p>Lesson 12 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p> <p>Activity 1: Students learn that area is additive.</p> <p>Activity 2: Students find the area of a figure by decomposing it into two non-overlapping rectangles.</p>	<p>Lesson 13 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p> <p>Activity 1: Students find the area of figures that are composed of rectangles but are not fully gridded with squares.</p> <p>Activity 2: Students find the area of a figure composed of rectangles</p>	<p>Lesson 14 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p> <p>Activity 1: Students consider a strategy to find a missing side length of a figure composed of rectangles.</p> <p>Activity 2: Students find the area of a figure composed of rectangles</p>	<p>Lesson 15 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p> <p>Activity 1: Students make sense of floor plans.</p> <p>Activity 2: Students apply their understanding of the area of rectangles to design a floor plan for a room. Students need Grid</p>

	Cooldown: Where are the Rectangles?	given only their side lengths. Cooldown: Find the Area	with missing sides by decomposing it into two non-overlapping rectangles. Cooldown: Mystery Side Area	paper, Scissors and Tools for creating a visual display. Materials to Copy New Bed and Desk
Additional Resource: Section C Practice Problems				
Assessment	Formative Assessment Strategies: observation, questioning, student discourse: Monitoring Sheet See Section C Checkpoint Assessment , Section C Checkpoint Teacher's Guide Unit 2 Assessment , Unit 2 Assessment Teacher Guide			
Centers Materials	<ul style="list-style-type: none"> • Five in a Row: Multiplication (3–5), Stage 2: Factors 1–9 (Addressing) • Five in a Row: Addition and Subtraction (1–2), Stage 8: Add within 1,000 with Composing (Supporting) 	<ul style="list-style-type: none"> • Five in a Row: Multiplication (3–5), Stage 2: Factors 1–9 (Addressing) • Five in a Row: Addition and Subtraction (1–2), Stage 8: Add within 1,000 with Composing (Supporting) 	<ul style="list-style-type: none"> • Five in a Row: Multiplication (3–5), Stage 2: Factors 1–9 (Addressing) • Five in a Row: Addition and Subtraction (1–2), Stage 8: Add within 1,000 with Composing (Supporting) 	<ul style="list-style-type: none"> • Five in a Row: Multiplication (3–5), Stage 2: Factors 1–9 (Addressing) • Five in a Row: Addition and Subtraction (1–2), Stage 8: Add within 1,000 with Composing (Supporting)

Making Meaning:

[Lesson 13: Find the Area of Figures](#)

- The purpose of this lesson is for students to calculate the area of ungridded figures made of rectangles using multiplication and addition.
- [Teacher presentation materials](#)
- [Slides](#)

Investigate:

[Lesson 14: Find the Area of Figures with Missing Sides](#)

- The purpose of this lesson is for students to calculate the area of ungridded figures made of rectangles, including figures with missing side lengths.

- [Teacher presentation materials](#)
- [Slides](#)

Checkpoints: These documents for the above lessons provide teachers with a template for collecting data and information on student understanding of skills and concepts.

[Checkpoint C: Assessment](#)

[Checkpoint C: Teacher Guide](#)

Create and Produce:

[Lesson 15: New Room](#)

- The purpose of this lesson is for students to use their experience with areas of figures composed of rectangles to solve problems.
- [Teacher presentation materials](#)
- [Slides](#)

Communicate and Present:

“Who can restate _____’s reasoning in a different way?”

“Did anyone have the same strategy but would explain it differently?”

“Did anyone approach the problem in a different way?”

“Does anyone want to add on to _____’s strategy?”

“What strategies did you or your partner use to find the missing side length?”

Reflection:

Lesson 12:

Which students came up with an unexpected strategy in today’s lesson? What are some ways you can be more open to the ideas of each and every student?

Lesson 13:

This lesson is designed to help students shift toward multiplying to find areas, rather than by counting unit squares. Did you see this shift in students’ strategies? What questions could you ask students about their strategies to help them make that shift if they are still counting frequently?

Lesson 14:

Reflect on which students have not shared their strategies in class lately. How can their insight or ways of thinking be highlighted in or tied to upcoming lessons?

	Lesson 15: What unfinished learning or misunderstandings do your students have about the area of rectangles? How did you leverage those misconceptions in a positive way to further the understanding of the class?
Notes: Follow lessons in numerical order.	Complete File with Resources and Task: Task-Based Learning Plan Format for Topic 1