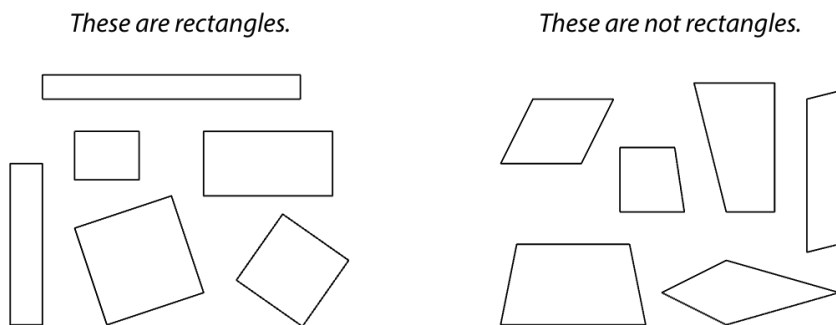


Course Title: Mathematics	Full Year	Required
<p>Course Description:</p> <p>The mathematical work for grade 3 is partitioned into 8 units:</p> <ol style="list-style-type: none"> 1. Introducing Multiplication 2. Area and Multiplication 3. Wrapping Up Addition and Subtraction within 1,000 4. Relating Multiplication 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 reason about attributes of two-dimensional shapes and learn about perimeter.

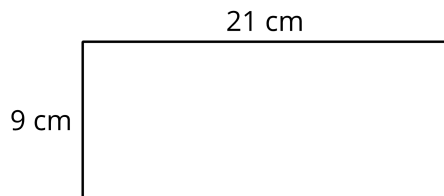
Students began to describe, compare, and sort two-dimensional shapes in earlier grades. Here, they continue to do so and to develop language that is increasingly more precise to describe and categorize shapes. Students learn to classify broader categories of shapes (quadrilaterals and triangles) into more specific subcategories based on their attributes. For instance, they study examples and non-examples of rhombuses, rectangles, and squares, and come to recognize their specific attributes.



Students also expand their knowledge about attributes that can be measured.

Previously, they learned the meaning of area and found the area of rectangles and figures composed of rectangles. In this unit, students learn the meaning of perimeter and find the perimeter of shapes. They consider geometric attributes of shapes (such as opposite sides having the same length) that can help them find perimeter.

Find the perimeter of this rectangle.



Topic Titles:

- Section A: Reason with Shapes
 - Reason about shapes and their attributes.
- Section B: What is Perimeter?
 - Find the perimeter of two-dimensional shapes, including when all or some side lengths are given.
- Section C: Expanding on Perimeter
 - Solve problems involving perimeter and area, in and out of context.
- Section D: Design with Perimeter and Area
 - Apply geometric understanding to solve problems.

As the lessons progress, they consider situations that involve perimeter, and then those that involve both perimeter and area. These lessons aim to distinguish the two attributes (which are commonly confused) and reinforce that perimeter measures length or distance (in length units) and area measures the amount of space covered by a shape (in square units).

At the end of the unit, students solve problems in a variety of contexts. They apply what they learn about geometric attributes of shapes, perimeter, and area, to design a park, a West African wax print pattern, and a robot. They then solve problems within the context of their design.

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

Students began to describe, compare, and sort two-dimensional shapes in earlier grades. Previously, they learned the meaning of area and found the area of rectangles and figures composed of rectangles.

<p>Essential Questions:</p> <ol style="list-style-type: none"> 1. What is the difference between the perimeter and area of a shape? 	<p>Enduring Understanding:</p> <ul style="list-style-type: none"> ● Perimeter measures length or distance (in length units) and area measures the amount of space covered by a shape (in square units). We can use what we know about addition to find the perimeter, and we can use what we know about multiplication to find the area of a shape. We can also use what we know about the properties of shapes to determine area and perimeter.
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<p>What Students Will Know:</p> <ul style="list-style-type: none"> ● We can use the terms “angle in a shape” and “right angle in a shape” to describe the corners of shapes ● Shapes can be sorted into more than one category depending on the attributes being considered ● Shapes with the same number of sides 	<p>What students will do:</p> <ul style="list-style-type: none"> ● Describe attributes of shapes. ● Sort shapes based on attributes in a way that makes sense to them. ● Sort triangles and quadrilaterals into subcategories. ● Understand that shared attributes of shapes can define a larger category, such as triangle or quadrilateral. ● Describe and identify shapes using their 	<p>Unit Specific Vocabulary:</p> <p>Academic vocabulary angle in a shape (Lesson 1) right angle in a shape (Lesson 1) perimeter (Lesson 6)</p>
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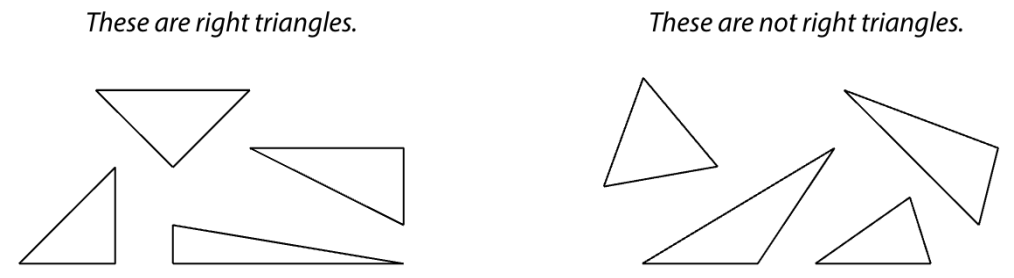
<p>can be further sorted into subgroups based on other attributes</p> <ul style="list-style-type: none">● We can identify examples and non-examples to understand the attributes of a shape● There are quadrilaterals that are not rhombuses, rectangles, or squares● Perimeter can be thought of as a boundary or the distance around a shape● To find the perimeter of a shape, we add the lengths of the sides together● We can use the attributes of shapes to find the perimeter when given only some of the side lengths or find a missing side length when given the perimeter● Area is the space inside a shape● While perimeter and area are both measurements that can appear together in problems, perimeter is a linear measurement while area is two-dimensional● Rectangles with the same perimeter do not always have the same area● Rectangles with the same area do not always have the same perimeter● We can use area and perimeter to describes features● We can use our knowledge of geometric attributes, perimeter, and area when modeling mathematically● When designing, we need to take into consideration specific constraints and parameters● When we recognize mathematical	<p>distinguishing attributes.</p> <ul style="list-style-type: none">● Identify attributes of rhombuses, rectangles, and squares.● Draw examples of quadrilaterals that are not rhombuses, rectangles, or squares.● Understand that shapes can be in more than one category.●	
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<p>features of objects in the real world, we are modeling with mathematics</p>		
<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 Section D: Pre-Unit Practice Problems</p>	<p>Unit Materials, Resources and Technology:</p> <ul style="list-style-type: none"> ● Illustrative Mathematics ● Instructional Routines and Math Language Routines ● Glossary - Student-friendly ● Required Materials ● IM en Español ● Pacing Guide and Dependency Diagrams K-5 	
<p>Opportunities for Interdisciplinary Connections:</p> <p>Students can connect with geography and science as they create gardens, parks and robots.</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 - Reason with Shapes	Duration: Recommended: 5 days
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Topic Description:
 In this section, students describe, compare, and sort a variety of shapes. They have previously used terms such as square, rectangle, triangle, quadrilateral, pentagon, and hexagon to name shapes. Here, students think about ways to further categorize triangles and quadrilaterals. They see that triangles and quadrilaterals can be classified based on their sides (whether some are of equal length) and their angles (whether one or more right angles are present).

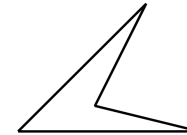
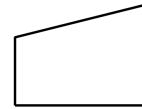
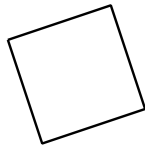
Although students will not learn the formal definition of an angle until grade 4, they are introduced to the terms “angle in a shape” and “right angle in a shape” to describe the corners of shapes. This allows students to distinguish right triangles and to describe defining attributes of squares and rectangles.



What makes a shape a right triangle?

Students come to understand that a shape can have more than one name if it has the attributes that define different types of shapes. They also see that some quadrilaterals aren’t squares, rhombuses, or rectangles because they don’t have the defining attributes of these shapes.

For example, here are three quadrilaterals. The first one is a rectangle, a rhombus, and a square. The other two are not squares, rhombuses, or rectangles.



Section Learning Goals

- Reason about shapes and their attributes.

Competencies Addressed:

Understanding and Applying Number Systems

Indicator 1 - I understand that numbers hold value (whole numbers).

Operations and Algebraic Thinking

Indicator 4 - I can multiply and divide within 100.

Reasoning with Geometry

Indicator 1 - I can reason with shapes and classify them based on their properties.

Essential Question and Enduring Understanding Addressed in this Topic:

What is the difference between the perimeter and area of a shape?

Perimeter measures length or distance (in length units) and area measures the amount of space covered by a shape (in square units). We can use what we know about addition to find the perimeter, and we can use what we know about multiplication to find the area of a shape. We can also use what we know about the properties of shapes to determine area and perimeter.

In this Topic, students will know:

- We can use the terms “angle in a shape” and “right angle in a shape” to describe the corners of shapes
- Shapes can be sorted into more than one category depending on the attributes being considered
- Shapes with the same number of sides can be further sorted into subgroups based on other attributes
- We can identify examples and non-examples to understand the attributes of a shape

Topic Vocabulary:

Academic vocabulary

angle in a shape (Lesson 1)
right angle in a shape (Lesson 1)

<ul style="list-style-type: none"> ● There are quadrilaterals that are not rhombuses, rectangles, or squares 	
<p>In this Topic, students will be able to:</p> <ul style="list-style-type: none"> ● Describe attributes of shapes. ● Sort shapes based on attributes in a way that makes sense to them. ● Sort triangles and quadrilaterals into subcategories. ● Understand that shared attributes of shapes can define a larger category, such as triangle or quadrilateral. ● Describe and identify shapes using their distinguishing attributes. ● Identify attributes of rhombuses, rectangles, and squares. ● Draw examples of quadrilaterals that are not rhombuses, rectangles, or squares. ● Understand that shapes can be in more than one category. 	<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 - Reason with Shapes	Grade Level and Unit: Grade 3, Unit
Description of Task: Students reason about shapes and their attributes, with a focus on quadrilaterals. They solve problems involving the perimeter and area of shapes.	Purpose of Task: The purpose of this task is for students to use their knowledge of geometric attributes to name quadrilaterals in different ways and to draw quadrilaterals that are not rhombuses, rectangles, or squares.
Background of Students/Learning Progression: In previous lessons, students learned the defining attributes of a rhombus, a rectangle, and a square. In this task, students apply that knowledge to name quadrilaterals in multiple ways and to draw quadrilaterals that are not rhombuses, rectangles, or squares.	Ensure all competencies are addressed in the task: <input type="checkbox"/> Yes, all competencies are addressed <input type="checkbox"/> No - Task needs modification

Section A

IM Lesson	L1: What Attributes Do You See?	L2: Attributes of Triangles and Quadrilaterals	L3: Attributes the Define Shapes	L4: Attribute of Rectangles, Rhombuses, and Squares	L5: Attributes of Other Quadrilaterals
Learning Cycle Model	Making Meaning	Investigate	Investigate	Investigate	Create and Produce
Naugatuck Math Competency	3.G.1	3.G.1, 3.NS.1	3.G.1, 3.NS.1	3.G.1	3.G.1, 3.OA.4
Math Practice Standards	MP 6, 7	MP 7	MP 6	MP 7	MP 6
Lesson Purpose	The purpose of this lesson is for students to sort shapes into categories based on their attributes.	The purpose of this lesson is for students to use attributes of triangles and quadrilaterals to sort them into more specific categories.	The purpose of this lesson is for students to describe geometric attributes of shapes.	The purpose of this lesson is for students to consider the geometric attributes a quadrilateral must have to be a rhombus, rectangle, or square.	The purpose of this lesson is for students to use their knowledge of geometric attributes to name quadrilaterals in different ways and to draw

					quadrilaterals that are not rhombuses, rectangles, or squares.
Teacher Facing Learning Goal	<ul style="list-style-type: none"> Describe attributes of shapes. Sort shapes based on attributes in a way that makes sense to them. 	<ul style="list-style-type: none"> Sort triangles and quadrilaterals into subcategories. Understand that shared attributes of shapes can define a larger category, such as triangle or quadrilateral. 	Describe and identify shapes using their distinguishing attributes.	Identify attributes of rhombuses, rectangles, and squares.	<ul style="list-style-type: none"> Draw examples of quadrilaterals that are not rhombuses, rectangles, or squares. Understand that shapes can be in more than one category.
Vocabulary Focus	angle in a shape right angle in a shape				
Lesson Materials/ Resources	<p>Lesson 1 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p> <p>Activity 1: Create a set of cards from the blackline master for each group of 2.</p> <p>Materials to Copy Shape Cards Grade 3</p>	<p>Lesson 2 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p> <p>Activity 1:</p> <ul style="list-style-type: none"> Create a set of cards from the blackline master for each group of 2 or 4. When copying the card sort triangles, use colored paper to distinguish these cards from the cards in the next activity. <p>Activity 2:</p> <ul style="list-style-type: none"> Create a set of cards from the blackline master for each group of 2 or 4. 	<p>Lesson 3 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p> <p>Activity 1: Gather a set of quadrilateral cards from the previous lesson.</p> <p>Activity 2:</p> <ul style="list-style-type: none"> Each group of 2 needs a set of quadrilateral cards from the previous lesson. <p>Each group of 2 will need a folder to hide the card during this activity.</p> <p>Materials to Gather Counters Folders</p>	<p>Lesson 4 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p> <p>Activity 1: Create a chart with labels showing a rectangle, rhombus, and square for the lesson synthesis.</p>	<p>Lesson 5 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p>

		<ul style="list-style-type: none"> Bags or envelopes can be used to store sets of cards from this activity for use in the next lesson. <p>Materials to Gather Bags or envelopes</p> <p>Materials to Copy Quadrilateral Cards Grade 3 Triangle Cards Grade 3</p>	Materials from a previous lesson		
	Cooldown: Tell Me About	Cooldown: Describe the Shape	Cooldown: Mystery Shape	Cooldown: Find the Rhombuses	Cooldown: Describe it, Draw it
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 Draw It? (1–5), Stage 2: Grade 2 Shapes (Supporting) How Are They the Same? (1–5), Stage 2: Grade 2 Shapes (Supporting) Which One? (K–5), Stage 3: Grade 2 Shapes (Supporting) 	<ul style="list-style-type: none"> Can You Draw It? (1–5), Stage 2: Grade 2 Shapes (Supporting) How Are They the Same? (1–5), Stage 2: Grade 2 Shapes (Supporting) Which One? (K–5), Stage 3: Grade 2 Shapes (Supporting) 	<ul style="list-style-type: none"> Can You Draw It? (1–5), Stage 2: Grade 2 Shapes (Supporting) How Are They the Same? (1–5), Stage 2: Grade 2 Shapes (Supporting) Which One? (K–5), Stage 3: Grade 2 Shapes (Supporting) 	<ul style="list-style-type: none"> Picture Books (K–5), Stage 3: Find Shapes (Addressing) Which One? (K–5), Stage 4: Grade 3 Shapes (Addressing) 	<ul style="list-style-type: none"> Picture Books (K–5), Stage 3: Find Shapes (Addressing) Which One? (K–5), Stage 4: Grade 3 Shapes (Addressing)

Making Meaning:

[Lesson 1: What Attributes Do You See?](#)

- The purpose of this lesson is for students to sort shapes into categories based on their attributes.

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

Investigate:

[Lesson 2: Attributes of Triangles and Quadrilaterals](#)

- The purpose of this lesson is for students to use attributes of triangles and quadrilaterals to sort them into more specific categories.
- [Teacher presentation materials](#)
- [Slides](#)

[Lesson 3: Attributes that Define Shapes](#)

- The purpose of this lesson is for students to describe geometric attributes of shapes.
- [Teacher presentation materials](#)
- [Slides](#)

[Lesson 4: Attributes of Rectangles, Rhombuses, and Squares](#)

- The purpose of this lesson is for students to consider the geometric attributes a quadrilateral must have to be a rhombus, rectangle, or square.
- [Teacher presentation materials](#)
- [Slides](#)

Create and Produce:

[Lesson 5: Attributes of Other Quadrilaterals](#)

- The purpose of this lesson is for students to use their knowledge of geometric attributes to name quadrilaterals in different ways and to draw quadrilaterals that are not rhombuses, rectangles, or squares.
- [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 A: Assessment](#)

[Checkpoint A: Teacher Guide](#)

Communicate and Present:

Select 1–2 students to share the terms they selected for each of the last four quadrilaterals and their reasoning.

Reflection:

“How has your thinking changed over the last few lessons

<p>Consider asking: “Who can restate _____’s reasoning in a different way?” “Does anyone want to add on to _____’s reasoning?” “Do you agree or disagree? Why?” “The last shape can be described with 4 of the choices. How is it possible that it can be described in so many ways?”</p> <p>Select students to share their drawings and explanations for the first three problems. Highlight explanations that include the defining attributes of squares, rectangles, and rhombuses.</p> <p>Invite students to share as many different quadrilaterals as they can think of for the last problem. Display as many as possible.</p>	<p>about what a quadrilateral can look like?” (Before, when I thought of quadrilaterals, I thought of rectangles and squares, but now I know they can look so different. Some have right angles and some don’t. Some have sides with equal length and some don’t. They all look really different even though they have some things in common.)</p>
<p>Notes: Follow all lessons in numerical order.</p>	<p>Complete File with Resources and Task:</p> <p>Task-Based Learning Plan Format for Topic 1</p>

Topic # 2 (Section B)

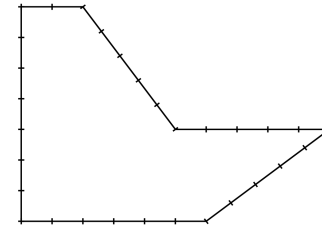
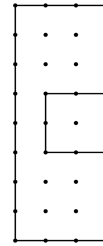
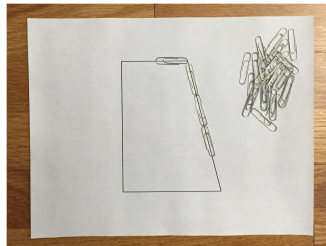
Topic Name: Section B - What is Perimeter?

Duration:

Recommended: 4 days

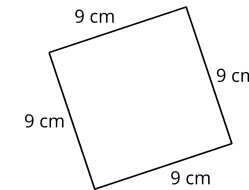
Topic Description:

In this section, students are introduced to the idea of perimeter. Students begin to conceptualize perimeter as a measurable geometric attribute with a concrete experience: using paper clips to build the boundary of shapes and using the length of a paper clip as the unit for measuring the distance around each shape.



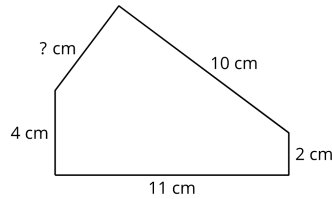
From there, they transition to analyzing shapes with equal-size intervals marked on their sides or shapes drawn on dot paper or grid paper. They quantify the distance around the shape by counting the intervals or adding the number of units on each side.

Later, students find the perimeter of shapes labeled with their side lengths. They learn to leverage the geometric attributes of shapes to find perimeter more efficiently (for instance, by recognizing sides that are the same length and using multiplication).



As they find the perimeter of shapes, students see that different shapes can have the same perimeter and draw shapes with a specified perimeter. Finally, students find missing side lengths of shapes given the perimeter and solve perimeter problems in context.

*This pentagon has a perimeter of 32 cm.
What is the length of the missing side?*



Section Learning Goals

- Find the perimeter of two-dimensional shapes, including when all or some side lengths are given.

Competencies Addressed:

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.

Operations and Algebraic Thinking

Indicator 4 - I can multiply and divide within 100.

Measurement and Data Investigations

Indicator 4 - I understand and can apply concepts of area and perimeter.

Essential Question and Enduring Understanding Addressed in this Topic:

What is the difference between the perimeter and area of a shape?

Perimeter measures length or distance (in length units) and area measures the amount of space covered by a shape (in square units). We can use what we know about addition to find the perimeter, and we can use what we know about multiplication to find the area of a shape. We can also use what we know about the properties of shapes to determine area and perimeter.

In this Topic, students will know:

- Perimeter can be thought of as a boundary or the distance around a shape
- To find the perimeter of a shape, we add the lengths of the sides together
- We can use the attributes of shapes to find the perimeter when given only some of the side lengths or find a missing side length when given the perimeter

Topic Vocabulary:

Academic vocabulary
perimeter (Lesson 6)

In this Topic, students will be able to: <ul style="list-style-type: none">● Describe perimeter as the length of the boundary of a flat shape.● Find the perimeter of two-dimensional shapes.● Find the perimeter of two-dimensional shapes.● Understand that many different shapes can have the same perimeter.● Find the perimeter of two-dimensional shapes given all or some of the side lengths.● Find unknown side lengths given the perimeter of a shape.● Solve problems that involve perimeters of shapes.	Plan for Student Reflection: Student Journal Prompts and Reflection Practices
	Plan for Teacher Reflection: <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 - What is Perimeter?		Grade Level and Unit: Grade 3, Unit		
Description of Task: Students use their understanding of perimeter to find missing side lengths when given the perimeter. Then, students solve problems in situations that involve perimeter. This task prepares students to think carefully about the difference between perimeter and area, which will be addressed in subsequent lessons.		Purpose of Task: The purpose of this task is for students to find unknown side lengths given the perimeter of a shape and solve problems involving perimeter.		
Background of Students/Learning Progression: In previous lessons, students learned how to find the perimeter of shapes given all sides lengths or some side lengths.		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 6: Distance Around Shapes <ul style="list-style-type: none"> The purpose of this lesson is for students to understand perimeter and find the perimeter of shapes by counting to determine the side lengths. Teacher presentation materials Slides 				
Section B				
IM Lesson	L6: Distance Around Shapes	L7: Same Perimeter, Different Shapes	L8: Find the Perimeter	L9: Perimeter Problems
Learning Cycle Model	Making Meaning	Investigating	Investigating	Create and Produce
Naugatuck Math Competency	3.MD.4	3.MD.4, 3.NS.5	3.MD.4, 3.OA.4	3.MD.4
Math Practice Standards	MP 8	—	MP 3, 7	MP 2

Lesson Purpose	The purpose of this lesson is for students to understand perimeter and find the perimeter of shapes by counting to determine the side lengths.	The purpose of this lesson is for students to practice finding the perimeter of shapes and to understand that many different shapes can have the same perimeter.	The purpose of this lesson is for students to find perimeters of shapes given all or some of the side lengths.	The purpose of this lesson is for students to find unknown side lengths given the perimeter of a shape and solve problems involving perimeter.
Teacher Facing Learning Goal	<ul style="list-style-type: none"> Describe perimeter as the length of the boundary of a flat shape. Find the perimeter of two-dimensional shapes. 	<ul style="list-style-type: none"> Find the perimeter of two-dimensional shapes. Understand that many different shapes can have the same perimeter. 	Find the perimeter of two-dimensional shapes given all or some of the side lengths.	<ul style="list-style-type: none"> Find unknown side lengths given the perimeter of a shape. Solve problems that involve perimeters of shapes.
Vocabulary Focus	perimeter			
Lesson Materials/ Resources	<p>Lesson 6 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p> <p>Activity 1: Grade3-7-6-Lesson-student-tasks-statements.pdf</p> <ul style="list-style-type: none"> Each group of 4 needs 25-50 paper clips that are $1\frac{1}{4}$-inch long each. <p>If using 1-inch paper clips, use 80% scale when making copies of the blackline masters.</p> <p>Materials to Gather Paper clips</p> <p>Materials to Copy What Does It Take to Build the Shapes?</p>	<p>Lesson 7 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p>	<p>Lesson 8 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p> <p>Materials to Gather Tools for creating a visual display</p>	<p>Lesson 9 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p>
	<p>Cooldown: What is the Perimeter?</p>	<p>Cooldown: Create Your Own Shapes</p>	<p>Cooldown: A Triangle and a Square</p>	<p>Cooldown: Sides of a Pool</p>

	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"> • Picture Books (K–5), Stage 3: Find Shapes (Addressing) • Which One? (K–5), Stage 4: Grade 3 Shapes (Addressing) 	<ul style="list-style-type: none"> • Can You Draw It? (1–5), Stage 3: Grade 3 Shapes (Addressing) • How Are They the Same? (1–5), Stage 3: Grade 3 Shapes (Addressing) 	<ul style="list-style-type: none"> • Can You Draw It? (1–5), Stage 3: Grade 3 Shapes (Addressing) • Which One? (K–5), Stage 4: Grade 3 Shapes (Addressing) • How Are They the Same? (1–5), Stage 3: Grade 3 Shapes (Addressing) 	<ul style="list-style-type: none"> • Can You Draw It? (1–5), Stage 3: Grade 3 Shapes (Addressing) • Which One? (K–5), Stage 4: Grade 3 Shapes (Addressing) • How Are They the Same? (1–5), Stage 3: Grade 3 Shapes (Addressing)

Making Meaning:

[Lesson 7: Same Perimeter, Different Shapes](#)

- The purpose of this lesson is for students to practice finding the perimeter of shapes and to understand that many different shapes can have the same perimeter.
- [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: Find the Perimeter](#)

- The purpose of this lesson is for students to find perimeters of shapes given all or some of the side lengths.
- [Teacher presentation materials](#)
- [Slides](#)

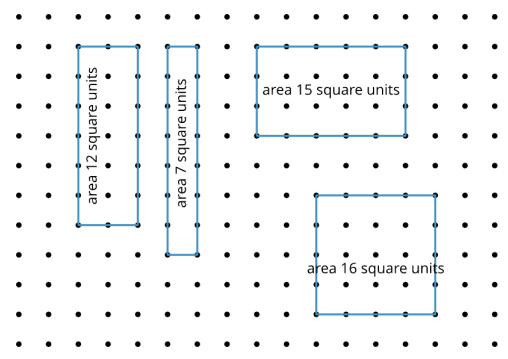
<p>Create and Produce:</p> <p>Lesson 9: Perimeter Problems</p> <ul style="list-style-type: none"> • The purpose of this lesson is for students to find unknown side lengths given the perimeter of a shape and solve problems involving perimeter. • Teacher presentation materials • Slides 	
<p>Communicate and Present:</p> <p>Select previously identified students to share their strategies. Be sure to share at least one method (more if possible) for each problem.</p>	<p>Reflection:</p> <p>“When would this strategy be most useful?”</p> <p>“Did anyone think about it in a different way?”</p> <p>“Did anyone solve this problem in a different way?”</p>
<p>Notes: Follow 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 - Expanding on Perimeter	Duration: Recommended: 3 days
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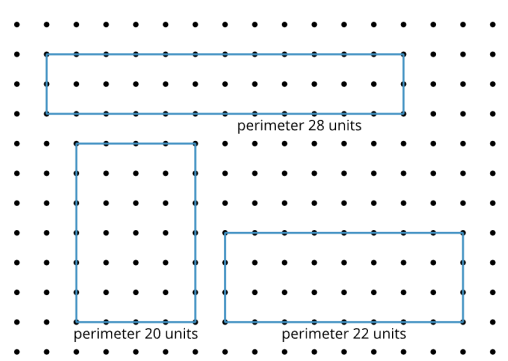
Topic Description:
In this section, students analyze the area and perimeter of shapes. They begin by solving contextual problems that require considerations of both measurements. They then draw rectangles with the same perimeter and different areas, and rectangles with the same area and different perimeters.

Students come to see that, given the perimeter of a rectangle, they can find rectangles with different whole-number areas. Likewise, given the area, they can find rectangles with different perimeters.

rectangles with a perimeter of 16 units



rectangles with an area of 24 square units



Section Learning Goals

- Solve problems involving perimeter and area, in and out of context.

<p>Competencies Addressed: 3.MD.D.8, 3.OA.C.7, 3.OA.D.8</p> <p>Operations and Algebraic Thinking</p>	<p>Essential Question and Enduring Understanding Addressed in this Topic:</p> <p>What is the difference between the perimeter</p>
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<p>Indicator 4 - I can multiply and divide within 100.</p> <p>Indicator 5 - I can solve multi-step problems using the four operations and assess the reasonableness of my answers.</p> <p>Measurement and Data Investigations</p> <p>Indicator 4 - I understand and can apply concepts of area and perimeter.</p>	<p>and area of a shape?</p> <p>Perimeter measures length or distance (in length units) and area measures the amount of space covered by a shape (in square units). We can use what we know about addition to find the perimeter, and we can use what we know about multiplication to find the area of a shape. We can also use what we know about the properties of shapes to determine area and perimeter.</p>
<p>In this Topic, students will know:</p> <ul style="list-style-type: none"> ● Area is the space inside a shape ● While perimeter and area are both measurements that can appear together in problems, perimeter is a linear measurement while area is two-dimensional ● Rectangles with the same perimeter do not always have the same area ● Rectangles with the same area do not always have the same perimeter 	<p>Topic Vocabulary:</p> <p>Academic vocabulary</p>
<p>In this Topic, students will be able to:</p> <ul style="list-style-type: none"> ● Solve problems that involve perimeter and area of rectangles. ● Draw rectangles with the same perimeter and different areas. ● Draw rectangles with the same area and different perimeters. 	<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 - Expanding on Perimeter	Grade Level and Unit: Grade 3, Unit
Description of Task: In this task, students draw rectangles with a specified area, find their perimeters, and notice that rectangles with the same area do not always have the same perimeter. Students then draw rectangles with specific areas that have different perimeters.	Purpose of Task: The purpose of this task is for students to understand that rectangles with the same area do not always have the same perimeter.
Background of Students/Learning Progression: In previous lessons, students learned to find the area and perimeter of rectangles and saw that rectangles with the same perimeter do not always have the same area.	Ensure all competencies are addressed in the task: <input type="checkbox"/> Yes, all competencies are addressed <input type="checkbox"/> No - Task needs modification

Section C

IM Lesson	L10: Problem Solving With Perimeter and Area	L11: Rectangles with the Same Perimeter	L12: Rectangles with the Same Area
Learning Cycle Model	Making Meaning	Investigate	Create and Produce
Naugatuck Math Competency	3.MD.4. 3.OA.4, 3.OA.5	3.MD.4. 3.OA.4	3.MD.4. 3.OA.4
Math Practice Standards	MP 1, 3, 6	MP 7	—
Lesson Purpose	The purpose of this lesson is for students to solve problems that involve both perimeter and area of rectangles in order to reinforce the difference between perimeter and area.	The purpose of this lesson is for students to understand that rectangles with the same perimeter do not always have the same area.	The purpose of this lesson is for students to understand that rectangles with the same area do not always have the same perimeter.
Teacher Facing Learning Goals	Solve problems that involve perimeter and area of rectangles.	Draw rectangles with the same perimeter and different areas.	Draw rectangles with the same area and different perimeters.
Vocabulary Focus			

Lesson Materials/ Resources	Lesson 10 Slides Teacher Materials Student Pages	Lesson 11 Slides Teacher Materials Student Pages	Lesson 12 Slides Teacher Materials Student Pages	
	Activity 2: <ul style="list-style-type: none"> Each group of 2 will need a copy of the 2 data and problem card sets. Keep set 1 separate from set 2. Materials to Copy Info Gap: A Garden and a Playground	Activity 2: <ul style="list-style-type: none"> Create 4 visual displays. Each visual display should be labeled with a different perimeter. Use the following perimeters: 12 units, 20 units, 26 units, 34 units). Students cut out and tape their rectangles on one of the visual displays during this activity. Materials to Gather Scissors, Tape	Activity 2: <ul style="list-style-type: none"> Create 4 visual displays. Each visual display should be labeled with one of the following areas: 12 square units, 20 square units, 42 square units, 48 square units. Students will cut out and tape their rectangles on to one of the visual displays. Materials to Gather Scissors, Tape	Materials to Copy Square Dot Paper Standard
	Cooldown: Lin’s Garden Fence	Cooldown: Perimeter of 18	Cooldown: Area of 36	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			
Centers Materials	<ul style="list-style-type: none"> Can You Draw It? (1–5), Stage 3: Grade 3 Shapes (Addressing) Which One? (K–5), Stage 4: Grade 3 Shapes (Addressing) How Are They the Same? (1–5), Stage 3: Grade 3 Shapes (Addressing) 	<ul style="list-style-type: none"> Can You Draw It? (1–5), Stage 4: Area and Perimeter (Addressing) 	<ul style="list-style-type: none"> Can You Draw It? (1–5), Stage 4: Area and Perimeter (Addressing) Compare (1–5), Stage 4: Divide within 100 (Supporting) How Close? (1–5), Stage 5: Multiply to 100 (Supporting) 	
Making Meaning:				

[Lesson 10: Problem Solving With Perimeter and Area](#)

- The purpose of this lesson is for students to solve problems that involve both perimeter and area of rectangles in order to reinforce the difference between perimeter and 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 C: Assessment](#)

[Checkpoint C: Teacher Guide](#)

Investigate:

[Lesson 11: Rectangles with the Same Perimeter](#)

- The purpose of this lesson is for students to understand that rectangles with the same perimeter do not always have the same area.
- [Teacher presentation materials](#)
- [Slides](#)

Create and Produce:

[Lesson 12: Rectangles with the Same Area](#)

- The purpose of this lesson is for students to understand that rectangles with the same area do not always have the same perimeter.
- [Teacher presentation materials](#)
- [Slides](#)

Communicate and Present:

Invite students to share the rectangles they drew and to explain how they knew the area was 24.

“How would you explain to someone how to draw rectangles with an area of 30 square units but different perimeters?”

Visit posters in a gallery walk in Activity 2.

Reflection:

“How did you decide what rectangles to draw?”

“What area did you and your partner choose to work with when you could choose your own area? Why did you choose that area?”

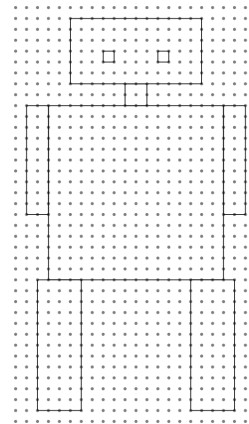
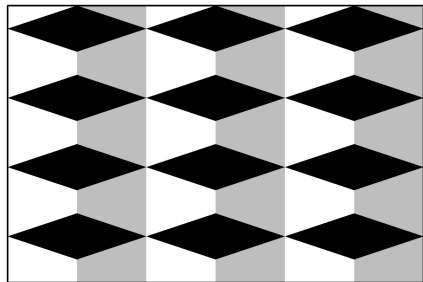
“As you visited the posters, what did you notice? What did you wonder?”	
Notes: Follow lessons in numerical order.	Complete File with Resources and Task: Task-Based Learning Plan Format for Topic 1

Topic # 4 (Section D)	Topic Name: Section D - Design with Perimeter and Area	Duration: Recommended: 3 days
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Topic Description:
 In this section, students apply what they've learned about shapes, geometric attributes, perimeter, and area to solve problems and create designs in different contexts.

Students begin by designing a small park with certain features and then finding the area and perimeter of the park. Next, they examine geometric features in West African wax print patterns and then design their own pattern. Finally, students use their knowledge of area and perimeter to create a drawing of a robot whose parts are rectangles with a certain area or perimeter.

Throughout these activities, students draw on dot paper and use the intervals between dots as a unit of measurement.



Section Learning Goals

- Apply geometric understanding to solve problems.

<p>Competencies Addressed:</p> <p>Measurement and Data Investigations</p>	<p>Essential Question and Enduring Understanding Addressed in this Topic:</p> <p>What is the difference between the perimeter</p>
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<p>Indicator 4 - I understand and can apply concepts of area and perimeter.</p> <p>Reasoning with Geometry</p> <p>Indicator 1 - I can reason with shapes and classify them based on their properties.</p>	<p>and area of a shape?</p> <p>Perimeter measures length or distance (in length units) and area measures the amount of space covered by a shape (in square units). We can use what we know about addition to find the perimeter, and we can use what we know about multiplication to find the area of a shape. We can also use what we know about the properties of shapes to determine area and perimeter.</p>
<p>In this Topic, students will know:</p> <ul style="list-style-type: none"> ● We can use area and perimeter to describes features ● We can use our knowledge of geometric attributes, perimeter, and area when modeling mathematically ● When designing, we need to take into consideration specific constraints and parameters ● When we recognize mathematical features of objects in the real world, we are modeling with mathematics 	<p>Topic Vocabulary:</p> <p>Academic vocabulary</p>
<p>In this Topic, students will be able to:</p> <ul style="list-style-type: none"> ● Apply geometric understanding to solve problems about parks. ● Apply geometric understanding to solve problems about wax prints. ● Apply geometric understanding to solve problems about robots. 	<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 4 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 4 - Design with Perimeter and Area	Grade Level and Unit: Grade 3, Unit
Description of Task: Students practice with perimeter and also find the area of their robots' body parts in preparation for discussion during the gallery walk, which centers around the different areas that can be created with rectangles that have the same perimeter. Students can choose to work independently, with a partner, or in a small group.	Purpose of Task: The purpose of this task is for students to draw rectangles with specified perimeters to create a robot.
Background of Students/Learning Progression: In previous lessons, students used geometric understanding to solve problems involving the design of wax prints and parks.	Ensure all competencies are addressed in the task: <input type="checkbox"/> Yes, all competencies are addressed <input type="checkbox"/> No - Task needs modification

Section D			
IM Lesson	L13: Shapes and Play	L14: Wax Prints	L15: Design Your Own Robot
Learning Cycle Model	Making Meaning	Investigate	Create and Produce
Naugatuck Math Competency	3.MD.4	3.G.1, 3.MD.4	3.MD.4
Math Practice Standards	MP 2, 4	MP 1, 6	MP 4
Lesson Purpose	The purpose of this lesson is for students to consider how geometric attributes, perimeter, and area are used when designing a playground.	The purpose of this lesson is for students to consider how geometric attributes, perimeter, and area are used to design and use wax print fabric.	The purpose of this lesson is for students to draw rectangles with specified perimeters to create a robot.

Teacher Facing Learning Goals	Apply geometric understanding to solve problems about parks.	Apply geometric understanding to solve problems about wax prints.	Apply geometric understanding to solve problems about robots.
Vocabulary Focus			
Lesson Materials/ Resources	Lesson 13 Slides Teacher Materials Student Pages Materials to Gather Materials to Copy Square Dot Paper Standard	Lesson 14 Slides Teacher Materials Student Pages Activity 2: Each group of 2 students will need a copy of the 2 data and problem card sets. Keep set 1 separate from set 2. Materials to Gather Colored pencils, crayons, or markers Materials to Copy Info Gap: The Bundle Square Dot Paper Standard	Lesson 15 Slides Teacher Materials Student Pages Activity 1: Students will need to tape together at least 2 sheets of the square dot paper to have space for their robot. Materials to Gather Tape Materials to Copy Square Dot Paper Standard
	Cooldown: Possible Perimeters	Cooldown: Quadrilaterals in a Pattern	Cooldown: Reflect on Learning About Perimeter
	Additional Resource: Section D Practice Problems		
Assessment	Formative Assessment Strategies: observation, questioning, student discourse: Monitoring Sheet See Section D Checkpoint Assessment , Section D Checkpoint Teacher's Guide Unit 7 Assessment , Unit 7 Assessment Teacher Guide		
Centers Materials	<ul style="list-style-type: none"> • Can You Draw It? (1–5), Stage 4: Area and Perimeter (Addressing) • Compare (1–5), Stage 4: Divide within 100 (Supporting) • How Close? (1–5), Stage 5: Multiply to 100 (Supporting) 	<ul style="list-style-type: none"> • Can You Draw It? (1–5), Stage 4: Area and Perimeter (Addressing) • Compare (1–5), Stage 4: Divide within 100 (Supporting) • How Close? (1–5), Stage 5: Multiply to 100 (Supporting) 	<ul style="list-style-type: none"> • Can You Draw It? (1–5), Stage 4: Area and Perimeter (Addressing) • Compare (1–5), Stage 4: Divide within 100 (Supporting) • How Close? (1–5), Stage 5: Multiply to 100 (Supporting)

Making Meaning:

[Lesson 13: Shapes and Play](#)

- The purpose of this lesson is for students to consider how geometric attributes, perimeter, and area are used when designing a playground.
- [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 D: Assessment](#)

[Checkpoint D: Teacher Guide](#)

Investigate:

[Lesson 14: Wax Prints](#)

- The purpose of this lesson is for students to consider how geometric attributes, perimeter, and area are used to design and use wax print fabric.
- [Teacher presentation materials](#)
- [Slides](#)

Create and Produce:

[Lesson 15: Design Your Own Robot](#)

- The purpose of this lesson is for students to draw rectangles with specified perimeters to create a robot.
- [Teacher presentation materials](#)
- [Slides](#)

Communicate and Present:

Gallery Walk: As you visit the robots with your partner, discuss the different areas that can be created with rectangles that have the same perimeter.

Reflection:

“Over the last three lessons we’ve used shapes, perimeter, and area to design fabric patterns, parks, and robots. What are some other things you are interested in designing that could use shapes, perimeter, and area?”

Notes: Follow lessons in numerical order.

Complete File with Resources and Task:

Task-Based Learning Plan Format for Topic 1