<table>
<tr><th>Course Title: Mathematics</th><th>Full Year</th><th>Required</th></tr>
<tr><td colspan="3">Course Description:
The mathematical work for kindergarten is partitioned into 8 units:
Math in Our World
Numbers 1–10
Flat Shapes All Around Us
Understanding Addition and Subtraction
Composing and Decomposing Numbers to 10
Numbers 0–20
Solid Shapes All Around Us
Putting it All Together
In these materials, particularly in units that focus on addition and subtraction, teachers will find terms that refer to problem types, such as Add To, Take From, Put Together or Take Apart, Compare, Result Unknown, and so on. These problem types are based on common addition and subtraction situations, as outlined in Table 1 of the Mathematics Glossary section of the Common Core State Standards.</td></tr>
<tr><td>Additional Course Information:

The big ideas in Kindergarten include:
Representing and comparing whole numbers, initially with sets of objects;
Understanding and applying addition and subtraction; and
Describing shapes and space.
Deeply understanding the concept that counting up is an addition process (+1/adding one more)
More time in kindergarten is devoted to numbers than to other topics.</td><td>Core Resources:

Illustrative Mathematics

Instructional Routines and Math Language Routines

Glossary - Student-friendly

Required Materials

IM en Español

Developing a Mathematical Community

Counting on Counting Collections Blog</td><td>Are there any attachments at the course level that teachers will need?

Scope and Sequence - This document should be reviewed at the start of the year and each unit for information on language routines, expectations, and possible misconceptions.

Pacing Guide and Dependency Diagrams K-5</td></tr>
</table>

Unit 7: Solid Shapes All Around Us	Duration: 17 to 18 days
Unit Overview - FOCUS: In this unit, students explore solid shapes while reinforcing their knowledge of counting, number writing and comparison, and flat shapes. They compose figures with pattern blocks and continue to count up to 20 objects, write and compare numbers, and solve story problems. In an earlier unit, students investigated two-dimensional shapes. They named shapes (circle, triangle, rectangle, and square) and described the ways the shapes are different. Students used pattern blocks to build larger shapes and used positional words (above, below, next to, beside) along the way. Here, students distinguish between flat and solid shapes before focusing on solid shapes. They consider the weight and capacity of solid objects and identify solid shapes around them. Geoblocks, connecting cubes, and everyday objects are used throughout the unit. Standard geoblock sets do not include cylinders, spheres, and cones. **When these shapes are required, "solid shapes" are indicated as required materials.** If solid shapes are not available, students can work with everyday items that represent each shape. Students use their own language to describe attributes of solid shapes as they identify, sort, compare, and build them, while also learning the names for cubes, cones, spheres, and cylinders. The work here prepares students to identify defining attributes of shapes and to use flat and solid shapes to create composite shapes in grade 1. **Unit Learning Goals** Students identify, describe, analyze, compare, and compose two- and three- dimensional shapes. Counting, addition, and subtraction are revisited in the geometric contexts.	**Topic Titles:** ● **Section A: Compose and Count with Flat Shape** ○ Compose shapes from smaller shapes. ○ Count and compare numbers, and solve story problems involving shapes. ● **Section B: Describe, Compare, and Create Solid Shapes** ○ Compare weight and capacity of objects. ○ Compose shapes from smaller shapes. ○ Describe and compare three-dimensional shapes.

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

In Unit 6, students answered "how many" questions and counted out groups within 20. They understand that numbers 11 to 19 are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. They write numbers within 20. In Unit 3, students learned to identify, describe, analyze, compare, and compose two-dimensional shapes.

In this unit, students will continue to engage in a **mathematical community** as they work with three-dimensional shapes, relying on their skills from Unit 6 to count, compare, sort and compose and decompose numbers using pattern blocks, and Unit 3 as use their understanding of two-dimensional shapes to inform their work with three-dimensional shapes. It may be helpful to refer to the previously-created class norms as students continue to engage in their lessons. As a class, it may be helpful to add norms that are needed for this unit.

Essential Questions:	**Enduring Understanding:**
1. How many different ways can we see the world around us?	**Numbers and shapes are two connected ways to describe and explain our world.** While numbers can help us to quantify what is happening around us and to us, shapes provide ways to describe, construct, create, and break down the world around us. Smaller shapes can be used to make bigger shapes. Shapes provide ways to differentiate and quantify those differences, including questions that involve weight and capacity. Three-dimensional shapes - built from two-dimensional shapes - tell a story about our world, and we can use these shapes to understand and make sense of the world, and solve problems that involve shapes.

What Students Will Know: (based on the competencies)	**What students will do: (based on the competencies)**	**Unit Specific Vocabulary:**
● Numbers can help us to record our counts. ● Shapes have different attributes. ● Counting helps us to answer "how many" questions. ● We can use different combinations to create the same shape. ● We can ask mathematical questions about different pictures and shapes. ● Equations can be read with the word "equals" rather than "is".	● Count to answer "how many" questions about groups of up to 20 shapes and represent the quantity with a number. ● Compare the number of objects in groups of up to 10 shapes. ● Tell and solve addition or subtraction story problems involving shapes. ● Match addition equations to shapes with two kinds of pattern blocks. ● Match equations to story problems. ● Solve story problems involving shapes. ● Compose and decompose 10 in more than one	**Academic vocabulary** Pattern Block "How many" Triangle Trapezoid Rhombus More Fewer Hexagon Story problem Equal Equation

• There are different ways to write an equation (example: 3 + 2 = 5 and 5 = 3 + 2) • Writing an equation helps us to understand what is happening in a story problem. • There are different ways to decompose a number. • Flat shapes are two-dimensional. • Solid figures are three-dimensional. • An attribute of solid shapes is weight. • We can use terms like heavy, light, heavier, and lighter to compare weights of two different objects. • Another attribute of solid shapes is capacity. • Cubes, cones, spheres, and cylinders are three-dimensional solids. • Faces, edges, and vertices are attributes of a solid figure. • Solid shapes can be found in our environment. • Positional words can be helpful when identifying where shapes are.	way. • Solve Put Together/Take Apart, Both Addends Unknown story problems involving shapes. • Distinguish between flat and solid shapes. • Compare the weights of two objects. • Compare the capacities of two objects. • Use their own language to describe and compare solid shapes. • Build solid shapes. • Recognize, name, describe, and build solid shapes in the environment. • Compose solid shapes to build new shapes. • Compose solid shapes to represent the environment.	Flat Solid Heavy Light Expression Sphere Cylinder Cube Cone Pyramid Estimate Model
Entry Level Assessment and Connection to Unit:	**Unit Materials, Resources and Technology:** • Unit 7 Teacher Guide • Illustrative Mathematics • Instructional Routines and Math Language Routines • Glossary - **Student-friendly** • Required Materials • **IM** en Español • Pacing Guide and Dependency Diagrams K-5	

Opportunities for Interdisciplinary Connections:	
Mighty Maddie by Stuart J. Murphy Just a Little Bit by Ann Tompert The Seesaw by Judith Koppens Balancing Act by Ellen Stoll Walsh	
Any links, attachments and resources: Instructional Routines Document Family Support Materials	**Planning Ideas:** Components of a Typical IM Lesson What To Know About IM When Planning Where to Find the Mathematical Practices in the Units Assessing the Mathematical Practices

Topic # 1: Section A	Topic Name: Section A - Compose and Count with Flat Shapes	Duration: Recommended: 6 days (6 lessons)

Topic Description:

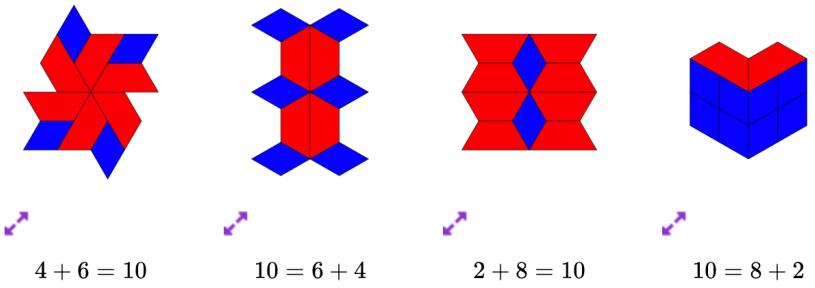
Section Learning Goals

- Compose shapes from smaller shapes.
- Count and compare numbers, and solve story problems involving shapes.

In this section, students strengthen their understanding of number concepts while working with pattern blocks. The work here allows the teacher to ensure that students have proficiency in counting and counting out to 20, writing and comparing numbers, and solving story problems.

In solving story problems, students match equations to the quantities in the problems, and complete equations so that they match the problems. For the first time, they hear equations read with the term “equals” rather than “is.” For example, 9 - 6 = 3 is read “9 minus 3 equals 6.” In this section, students see equations written with both the total written first and the addends written first.

Students consider ways to make the number 10 in the context of building shapes and completing puzzles with pattern blocks. Along the way, they think about attributes of pattern blocks.



Competencies Addressed:

Understanding and Applying Number Systems

- **K.NS.1** - I can tell the number of objects using counting and instant visual recognition. (K.CC.B.4-5)
- **K.NS.3** - I can count to 100 by ones and by tens and can count from a given number within 20. (K.CC.A.1-2)
- **K.NS.4-** I can name and write numbers 0-20 to represent a group of objects. (K.CC.A.3)
- **K.NS.2** - I can compare quantities and numbers. (K.CC.C.6-7)
- **K.NS.5 -** I can work with numbers 11-19 to gain foundations for place value. (K.NBT.A.1)

Essential Question and Enduring Understanding Addressed in this Topic:

Essential Question

How many different ways can we see the world around us?

Enduring Understanding

Numbers and shapes are two connected ways to describe and explain our world. While numbers can help us to quantify what is

<table>
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<td>Geometry

● K.G.4 - I can build and create simple shapes to form larger shapes. (K.G.B.5-6)

Operations and Algebraic Thinking

● K.OA.1 - I can represent addition within 10 and fluently add within 5. (K.OA.A.1, K.OA.A.4, K.OA.A5)
● K.OA.2- I can represent subtraction within 10 and fluently add within 5. (K.OA.A.1, K.OA.A.5)
● K.OA.3 - I can solve addition and subtraction word problems within 10. (K.OA.A.2)
● K.OA.4 - I can break apart numbers 1-10 into pairs in more than one way. (K.OA.A.3)</td>
<td>happening around us and to us, shapes provide ways to describe, construct, create, and break down the world around us. Smaller shapes can be used to make bigger shapes. Shapes provide ways to differentiate and quantify those differences, including questions that involve weight and capacity. Three-dimensional shapes - built from two-dimensional shapes - tell a story about our world, and we can use these shapes to understand and make sense of the world, and solve problems that involve shapes.</td>
</tr>
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<td>In this Topic, students will know:
● Numbers can help us to record our counts.
● Shapes have different attributes.
● Counting helps us to answer “how many” questions.
● We can use different combinations to create the same shape.
● We can ask mathematical questions about different pictures and shapes.
● Equations can be read with the word “equals” rather than “is”.
● There are different ways to write an equation (example: 3 + 2 = 5 and 5 = 3 + 2)
● Writing an equation helps us to understand what is happening in a story problem.
● There are different ways to decompose a number.</td>
<td>Topic Vocabulary:

Academic vocabulary:
Pattern Block
“How many”
Triangle
Trapezoid
Rhombus
More
Fewer
Hexagon
Story problem
Equal
Equation</td>
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<tr>
<td rowspan="2">In this Topic, students will be able to:
● Count to answer “how many” questions about groups of up to 20 shapes and represent the quantity with a number.
● Compare the number of objects in groups of up to 10 shapes.
● Tell and solve addition or subtraction story problems involving shapes.
● Match addition equations to shapes with two kinds of pattern blocks.
● Match equations to story problems.
● Solve story problems involving shapes.
● Compose and decompose 10 in more than one way.</td>
<td>Plan for Student Reflection:

Student Journal Prompts and Reflection Practices

Unit 7 I can Self Assessment</td>
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<td>Plan for Teacher Reflection:</td>
</tr>
</table>

● Solve Put Together/Take Apart, Both Addends Unknown story problems involving shapes.	**Reflect on the following questions:** ● What was the best question that you asked students today? Why would you consider it the best one based on what students said or did? ● When do your students feel successful in math? How do you know? ● Students shared their thinking multiple times in this lesson. What have you noticed about the language students use? What support can you offer to students who struggle to communicate their ideas orally? ● In grade 1, students make sense of the meaning of the equal sign and determine if equations involving addition and subtraction are true or false. How does the work in this lesson prepare students for this work in grade 1? ● Who got to do math today in class and how do you know? Identify the norms or routines that allowed those students to engage in mathematics. How can you adjust these norms and routines so all students do math tomorrow? ● Which students did you talk to or observe during independent or group work time? Which students did you not get a chance to talk to or observe? How can you use centers in the coming days to check-in with students that you haven't observed recently? **Utilize additional strategies for Teacher Reflection:** ● Reviewing formative assessments ● Developing scaffolds

	● Collaborative scoring ● PLCs ● Planning for small groups

Topic 1 Task Development

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

Task Title: Topic 1 - Compose and Count with Flat Shapes	**Grade Level and Unit: Kindergarten, Unit 7**
Description of Task: Students will be creating a book of patterns that students will create using rhombus and trapezoid pattern blocks. On each page of the book, the student will have created a different shape with a total amount of 10 pattern blocks.	**Purpose of Task:** The purpose of this activity is for students to compose and decompose 10 in multiple ways in the context of putting together pattern blocks. In order to draw the shapes they created with pattern blocks, students may draw or trace each shape. Using different colored crayons (red for the red trapezoids, blue for the blue rhombuses) may help students differentiate between the shapes. Students are not expected to draw precise or accurate shapes. Students may use a combination of words, numbers, and colors to label and record how many of each pattern block they used in their book. In the activity synthesis, students look for patterns in equations and try to determine if all of the decompositions of 10 have been found (MP7).
Background of Students/Learning Progression: In this section, students continue to grow their understanding of number concepts while working with pattern blocks. The work in this section reinforces prior concepts of counting up to 20, writing and comparing numbers, and solving story problems. Not only will students continue their work with counting and comparing numbers, but they will also explore different attributes of pattern blocks and shapes. Through these lessons, students will gain a deeper understanding of what equations represent and the meaning of the equal sign.	**Ensure all competencies are addressed in the task:** ▢ Yes, all competencies are addressed ▢ No - Task needs modification
Getting Started: The sequence of lessons in Section A of Unit 7 lead students to apply their knowledge of counting up to 20 to create a book where students utilize pattern blocks to make their own shapes. This “getting started” activity provides students with an opportunity to describe different shapes that they see. This activity will provide access to students’ knowledge of shapes and provide a discussion using the terminology for describing shapes. To begin, present the following picture to students:	

Provide a minute or so for students to independently identify which shapes they notice in the picture. It may be helpful to have an anchor chart that provides students with shapes that were discussed in prior units. After independent think time, ask students to share what shapes they see and how they know it is that particular shape. For example, if they see a triangle, does it have three sides? Note which shapes students have identified. Ask students what is the same about these shapes and what is different.

Learning Cycle Model Process

Section A

IM Lesson	L1: Build Shapes	L2: More or Fewer Pattern Blocks	L3: Questions and Stories About Shapes	L4: Pattern Block Puzzles and Equations	L5: Story Problems about Shapes	L6: Compose and Decompose 10 with Pattern Blocks
Learning Cycle Model	**Making Meaning**	**Making Meaning**	**Investigate**	**Investigate**	**Investigate**	**Create and Produce**
Naugatuck Math Competency	K.NS.1-5, K.G.4	K.NS.2-3, K.G.4	K.NS.1-4, K.G.4, K.OA.1-3	K.G.4, K.OA.1-2	K.OA.1-3	K.NS.3, K.G.4, K.OA.1-4
Math Practice Standards	MP 1, 7	MP 2, 7	MP 2, 3, 4	MP 2	MP 2	MP 2, 7
Lesson Purpose	The purpose of this lesson is for students to compose and decompose 10 in multiple ways in the context of pattern blocks.	The purpose of this lesson is for students to compose and decompose 10 in multiple ways in the context of pattern blocks.	The purpose of this lesson is for students to compose and decompose 10 in multiple ways in the context of pattern blocks.	The purpose of this lesson is for students to compose and decompose 10 in multiple ways in the context of pattern blocks.	The purpose of this lesson is for students to compose and decompose 10 in multiple ways in the context of pattern blocks.	The purpose of this lesson is for students to compose and decompose 10 in multiple ways in the context of pattern blocks.
Vocabulary Focus	"How many" Pattern block	Compare Pattern block	Question Story problem	Equations "How many"	Story problem Equation	Patterns Expression

	Puzzle Triangles	Puzzle Triangles Trapezoids Fewer			Question	Story problem More Fewer

Lesson Materials/ Resources	Lesson 1 Slides
	
	Teacher Presentation Materials
	
	Student Pages
	
	Activity 1:
	● Squares, Squares, Squares
	● Each student needs at least 10 square pattern blocks
	
	Activity 2:
	● Shape Puzzle
	● Each group of 2 needs at least 16 triangle pattern blocks and 8 rhombus pattern blocks
		Lesson 2 Slides
		
		Teacher Presentation Materials
		
		Student Pages
		
		Activity 1:
		● Quack Quack
		● Pattern Blocks
		● To display during the activity synthesis, create:
		  ● a shape with 6 green triangle pattern blocks and 2 red trapezoid pattern blocks.
		  ● a shape with 6 blue rhombus pattern blocks and 7 red trapezoid pattern blocks.
		
		Activity 2:
		● Make a Y
		● Pattern Blocks
		
		Activity 3:
		● Intro Pattern Blocks Stage 6 Mat
		
		Cool Down
			Lesson 3 Slides
			
			Teacher Presentation Materials
			
			Student Pages
			
			Activity 1:
			● Pattern Blocks
			
			Activity 2:
			● Pattern Blocks
			● Connecting Cubes or 2 color counters
			
			Activity 3:
			● Intro Pattern Blocks Center (Stage 7)
				Lesson 4 Slides
				
				Teacher Presentation Materials
				
				Student Pages
				
				Activity 1:
				● Create a shape with 1 red trapezoid pattern block and 4 green triangle pattern blocks to display in the activity synthesis.
				● Pattern Blocks
				
				Activity 2:
				● Pattern Blocks
					Lesson 5 Slides
					
					Teacher Presentation Materials
					
					Student Pages
					
					Activity 2:
					● 10-frames
					● Connecting cubes or two-color counters
					● Pattern blocks
						Lesson 6 Slides
						
						Teacher Presentation Materials
						
						Student Pages
						
						Activity 1:
						● 10-frames
						● Connecting cubes or two-color counters
						● Pattern blocks
						
						Activity 2:
						● 10-frames
						● Pattern blocks
						● Book of 10
						● Create a chart labeled with “trapezoids” and “rhombuses”
						
						Activity 3:
						● Intro Shake and Spill (Stage 4)
						● Cups
						● 2 color counters

Assessment	Formative Assessment Strategies: observation, questioning, student discourse. See **Checkpoint A Document**, **Checkpoint A Teacher Guide**, and **Grade K Unit 7 I Can Self Assessment Section A Practice Problems**					

Centers Materials	Geoblocks (Stage 1 & 2) Grab and Count (Stage 1) Find the Pair (Stage 1 & 2)	Geoblocks (Stage 1 & 2) Grab and Count (Stage 1) Find the Pair (Stage 1 & 2)	Geoblocks (Stage 1 & 2) Grab and Count (Stage 1) Find the Pair (Stage 1 & 2)	Pattern Blocks (Stage 1-7) Geoblocks (Stage 1 & 2) Grab and Count (Stage 1) Find the Pair (Stage 1 & 2)	Pattern Blocks (Stage 1-7) Geoblocks (Stage 1 & 2) Grab and Count (Stage 1) Find the Pair (Stage 1 & 2)	Shake and Spill (Stage 4)

Making Meaning:

Lesson 1: Build Shapes

- The purpose of this lesson is for students to reinforce counting concepts as they build with and consider the attributes of pattern blocks.
- Lesson 1 Slides
- Teacher Presentation Materials

Lesson 2: More or Fewer Pattern Blocks

- The purpose of this lesson is for students to compare groups of up to 10 objects in the context of putting together pattern blocks.
- Lesson 2 Slides
- Teacher Presentation Materials
- Cool Down

This series of lessons allows students to make connections of counting principles to geometric concepts. Students will identify that they can utilize counting concepts with building and creating with pattern blocks. This part of the unit supports building students' fluency as the unit reinforces counting concepts through the use of pattern blocks. Not only will students continue to deepen their understanding of counting concepts, but they will explore attributes of different shapes and pattern blocks.

Investigation:

This series of lessons allows students to investigate pattern blocks through creating questions and story problems. Through their investigation, students will extend their knowledge of counting concepts and equations to determine appropriate mathematical questions and story problems that align to shapes that they create with pattern blocks.

Lesson 3: Questions and Stories About Shapes

- The purpose of this lesson is for students to ask and answer mathematical questions about shapes composed of pattern blocks.
- Lesson 3 Slides
- Teacher Presentation Materials

Lesson 4: Pattern Block Puzzles and Equations

- The purpose of this lesson is for students to relate addition equations to shapes made with 2 kinds of pattern blocks.
- Lesson 4 Slides
- Teacher Presentation Materials

Lesson 5: Story Problems about Shapes

- The purpose of this lesson is for students to solve Add To, Result Unknown and Take From, Result Unknown story problems about pattern blocks.
- Lesson 5 Slides
- Teacher Presentation Materials

This section is an opportune time to reinforce what the word equal means. Equal means the same. This will be very important later on when students are looking at equations and understanding that one side of the equation must be THE SAME AS the other side. (Example: 3+2 IS THE SAME AS 5). In this part of the unit, this will be the first time that students will experience the word "equal." Consider utilizing both forms of equations (Example: 3 + 2=5 and 5=3+2).

Create and Produce:

Lesson 6: Compose and Decompose 10 with Pattern Blocks

- The purpose of this lesson is for students to compose and decompose 10 in multiple ways in the context of pattern blocks.
- Lesson 6 Slides
- Teacher Presentation Materials

Students will put together what they have learned about pattern blocks to create a picture book that contains multiple combinations of a collection of 10. In a previous unit, students solved Put Together/Take Apart, Both Addends Unknown story problems and decomposed 10 in more than one way. Students are not required to find all the ways to decompose 10, but they may use their understanding of how to find a number that makes 10 when added to a given number to help them find different decompositions.

Communicate and Present:

Display the chart paper labeled with "trapezoids" and "rhombuses". Ask students to pick their favorite page in their book and say "How many blue rhombus pattern blocks and how many red trapezoid pattern blocks did you use to create the shape on your favorite page?"
Share and record all student responses as equations on a chart. Record the responses systematically, as in:

- 10=9+1
- 10=8+2
- 10=7+3
- 10=6+4
- 10=5+5
- 10=3+7
- 10=2+8

Reflection:

If not all decompositions of 10 are listed, ask "Are there any ways to make 10 that are missing from our list? What makes you think that?" (There's no 4 under the trapezoid. If we did 6 trapezoids and 4 rhombuses, maybe we could do 4 trapezoids and 6 rhombuses instead.) You may also utilize questions from the IM Reflection Practices to create additional reflection questions for students.

- IM Reflection Practices

● 10=1+9 If a student shares a decomposition that was previously shared, point to the decomposition that was already listed. “What do you notice?” (Sample responses: The numbers in one column go up. The other numbers go down. We didn’t write an equation with 4 trapezoids.)	
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 - Describe, Compare, and Create Solid Shapes**	**Duration:** Recommended: 10 days (10 lessons)

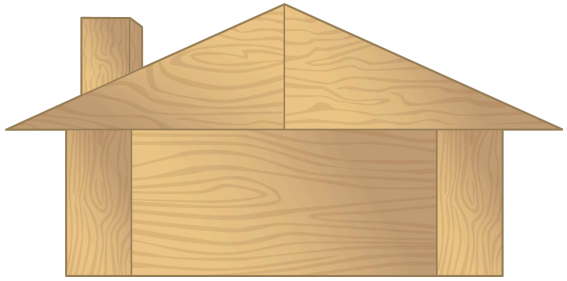
Topic Description:

This section introduces students to solid shapes. Students begin by distinguishing solid shapes from flat shapes. They then learn about weight as an attribute of solid shapes and compare weights, and work with tactile materials or objects to develop their understanding of three-dimensional shapes.

Throughout the section, students hear and use the terms “flat” and “solid” to describe two- and three-dimensional shapes, but they also use their own language to talk about shapes. When comparing weights, the terms “heavy,” “light,” “heavier,” and “lighter” are used. While students are introduced to the names of solid shapes, they are not expected to use the formal terms. For example, they may say “ball” to refer to a sphere.

Initially, students build solid shapes with clay. Later, they do so out of given components, using positional words and names of shapes as they build and describe their creations. They also describe attributes of solid shapes as they compare and sort them.

At the end of the section, students create a model of their classroom and use solid shapes to represent objects in their world.



Section Learning Goals

- Compare weight and capacity of objects.
- Compose shapes from smaller shapes.
- Describe and compare three-dimensional shapes.

Competencies Addressed:

Understanding and Applying Number Systems

- **K.NS.1** - I can tell the number of objects using counting and instant visual recognition. (K.CC.B.4-5)
- **K.NS.3 -** I can count to 100 by ones and by tens and can count from a given number within 20. (K.CC.A.1-2)
- **K.NS.5** - I can work with numbers 11-19 to gain foundations for place value. (K.NBT.A.1)

Operations and Algebraic Thinking

- **K.OA.1** - I can represent addition within 10 and fluently add within 5. (K.OA.A.1, K.OA.A.4, K.OA.A5)
- **K.OA.2**- I can represent subtraction within 10 and fluently add within 5. (K.OA.A.1, K.OA.A.5)

Measurement and Data Investigations

- **K.MD.1-** I can describe and compare measurable attributes. (K.MD.A.1-2)
- **K.MD.2** - I can classify objects and count the number of objects in each category. (K.M.D.B.3)

Reasoning with Geometry

- **K.G.1** - I can name shapes and identify whether they are two-dimensional or three dimensional.

Essential Question and Enduring Understanding Addressed in this Topic:

Essential Question

How many different ways can we see the world around us?

Enduring Understanding

Numbers and shapes are two connected ways to describe and explain our world. While numbers can help us to quantify what is happening around us and to us, shapes provide ways to describe, construct, create, and break down the world around us. Smaller shapes can be used to make bigger shapes. Shapes provide ways to differentiate and quantify those differences, including questions that involve weight and capacity. Three-dimensional shapes - built from two-dimensional shapes - tell a story

(K.G.A.2-3) ● **K.G.2** - I can use my understanding of positional words to describe objects in the environment. (K.G.A.1) ● **K.G.3** - I can analyze and compare two- and three-dimensional shapes in order to describe their attributes. (K.G.B.4) ● **K.G.4** - I can build and create simple shapes to form larger shapes. (K.G.B.5-6)	about our world, and we can use these shapes to understand and make sense of the world, and solve problems that involve shapes.
In this Topic, students will know: ● Flat shapes are two-dimensional. ● Solid figures are three-dimensional. ● An attribute of solid shapes is weight. ● We can use terms like heavy, light, heavier, and lighter to compare weights of two different objects. ● Another attribute of solid shapes is capacity. ● Cubes, cones, spheres, and cylinders are three-dimensional solids. ● Faces, edges, and vertices are attributes of a solid figure. ● Solid shapes can be found in our environment. ● Positional words can be helpful when identifying where shapes are.	**Topic Vocabulary:** **Academic vocabulary** Flat Solid Weight Heavy Light Expression Sphere Cylinder Cube Cone Pyramid Estimate Model
In this Topic, students will be able to: ● Distinguish between flat and solid shapes. ● Compare the weights of two objects. ● Compare the capacities of two objects. ● Use their own language to describe and compare solid shapes. ● Build solid shapes. ● Recognize, name, describe, and build solid shapes in the environment. ● Compose solid shapes to build new shapes. ● Compose solid shapes to represent the environment.	**Plan for Student Reflection:** Student Journal Prompts and Reflection Practices Unit 7 I Can Self Assessment **Plan for Teacher Reflection:** **Reflect on the following questions:** ● The standards ask students to “identify shapes as two-dimensional (lying in a plane, ‘flat’) or

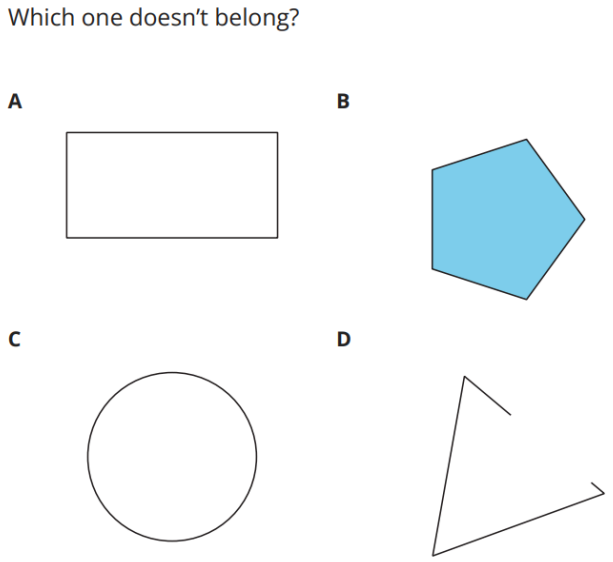
	three-dimensional (‘solid’).” How does building shapes out of clay help students distinguish between two-dimensional and three-dimensional shapes? ● In tomorrow’s lesson, students work together in groups to compare the capacities of cups and containers. What did you learn about how students worked in groups today that can help you prepare for tomorrow’s lesson? ● What part of the lesson went really well today in terms of students learning? What did you do that made that part go well? ● As students worked with their partners today, whose ideas were heard, valued, and accepted? How can you adjust the group structure tomorrow to ensure each student’s ideas are part of the collective learning? ● In grade 1, students distinguish between defining and non-defining attributes of shapes. How does the work of this lesson prepare students for the work of grade 1? ● What did students notice about rectangular prisms in the warm-up? What new things did students notice about rectangular prisms as they built them in the first activity? ● Think about a recent time from class when your students were confused. What did you do to support them in reasoning about their confusion together as a community of learners? ● How did students use positional words to describe what they built during this lesson? ● How are students working together during centers? Are all students getting the opportunity to participate in the mathematics? ● As you finish up this unit, reflect on the norms and activities that have supported each student in learning math. List ways you have seen each student grow as a young mathematician throughout this work. List ways you have seen yourself grow as a teacher. What will you continue to do and what will you improve upon in the next unit?

	Utilize additional strategies for Teacher Reflection: ● Reviewing formative assessments ● Developing scaffolds ● Collaborative scoring ● PLCs ● Planning for small groups

Topic 2 Task Development

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

Task Title: Topic 2 -Describe, Compare, and Create Solid Shapes	**Grade Level and Unit: Kindergarten, Unit 7**
Description of Task: Students will use shapes that they have learned to create models of their classroom. After creating their model of the classroom with a classmate, students take a gallery walk to look at the different models and practice describing their model. Then they return to their model and make changes or additions based on what they have observed in the other classroom models.	**Purpose of Task:** The purpose of this activity is to make a model of the classroom using solid shapes (MP4). To do this, students need to: choose important objects to represent, decide which shapes to use to represent the objects, and place the shapes appropriately to represent where things are in the classroom.
Background of Students/Learning Progression: In this section of the unit, students made meaning by building solid shapes with clay. Later, they do so out of given components, using positional words and names of shapes as they build and describe their creations. They also describe attributes of solid shapes as they compare and sort them. At the end of this section, students create a model of their classroom and use solid shapes to represent objects in their world. Ultimately, this task provides students to grapple with the essential question and enduring understandings of the unit.	**Ensure all competencies are addressed in the task:** ▢ Yes, all competencies are addressed ▢ No - Task needs modification
Getting Started: To support students in "Getting Started" with this task, utilize the Warm-Up from Lesson 7. The Warm-Up follows the Which One Doesn't Belong routine and provides students with the opportunity to carefully analyze and compare attributes in flat shapes. In making comparisons, students have a reason to use language precisely (MP6). The activity also enables the teacher to hear the terminologies students know and how they talk about attributes of shapes. Display the following image:	



Prompt students by saying: "Pick one that doesn't belong. Be ready to share why it doesn't belong." Provide students with one minute of independent think time. After, have students discuss their thinking with a partner. As students are sharing with the whole class, record their responses on chart paper. This will act as a support throughout the lesson.

Learning Cycle Model Process

Section B

IM Lesson	L7: Flat and Solid Shapes	L8: Compare Weight	L9: Compare Capacity	L10: Identify and Describe Solid Shapes	L11: Compare and Sort Solid Shapes	L12: Build Solid Shapes	L13: Describe Solid Shapes Around Us	L14: Compose with Solid Shapes	L15: Build and Count with Solid Shapes	L16: Represent the Classroom with Shapes
Learning Cycle Model	Making Meaning	Making Meaning	Making Meaning	Making Meaning	Making Meaning	Investigation	Investigation	Investigation	Investigation	Create and Produce
Naugatuck Math Competency	K.G. 1, 3, 4 K.MD.2	K.MD.1	K.NS.3, K.MD.1	K.G.1, 3, 4 K.OA.1-2	K.G.1-3 K.MD.2	K.G.3-4	K.G.2, 4	K.G.2, 4 K.OA.1-2	K.NS.1 K.G.3-4 K.NS.5	K.NS.3 K.G.4
Math Practice Standards	MP 7	MP 6	MP 3, 7	MP 6, 7	MP 6	-	MP 4, 6	MP 6	-	MP 3, 4

Lesson Purpose	The purpose of this lesson is for students to identify shapes as flat (two-dimensional) or solid (three-dimensional) as they build and sort shapes.	The purpose of this lesson is to introduce students to the concept and language used to compare weight.	The purpose of this lesson is to introduce students to the concept and language used to compare capacity.	The purpose of this lesson is for students to identify and describe solid shapes.	The purpose of this lesson is for students to compare solid shapes.	The purpose of this lesson is for students to build solid shapes from components.	The purpose of this lesson is for students to notice and describe the locations of solid shapes in their environment.	The purpose of this lesson is for students to compose solid shapes to build new shapes.	The purpose of this lesson is for students to build with solid shapes to reinforce counting and comparing concepts.	The purpose of this lesson is for students to use solid shapes to make a model of the classroom.
Vocabulary Focus	Flat Solid Two-dimensional Three-dimensional	Weight Heavy Light	Capacity	Sphere Cylinder Cube Cone Pyramid	Faces Edges Vertices	Rectangular Prism	Environment	Compose	Attributes	Model
Lesson Materials/ Resources	Lesson 7 Slides Teacher Presentation Materials Student Pages **Activity 1**: • Each student needs a piece of clay. • Gather a cone and cylinder to display. **Activity 2:** • Each group of 2 needs a set of solid shapes and	Lesson 8 Slides Teacher Presentation Materials Student Pages **Activity 1:** • Prepare 2 boxes, one filled with books, labeled “1,” and one empty box, labeled “2.” • Prepare 2 closed bags, one containing a few crayons, labeled “1,”	Lesson 9 Slides Teacher Presentation Materials Student Pages **Activity 1:** • Gather a larger pitcher and a small cup to display during the launch. • Gather 2 cups with capacities that are not easy to compare visually,	Lesson 10 Slides Teacher Presentation Materials Student Pages **Activity 1:** • Each group of 2 students needs solid shapes and a set of Flat Shapes Cards from a previous lesson. • Gather a ball, a can, a number cube, and	Lesson 11 Slides Teacher Presentation Materials Student Pages **Warm-up:** • Gather a cylinder to display. **Activity 1:** • Each group of 2 students needs at least 6-8 solid shapes. • Gather a cone, a	Lesson 12 Slides Teacher Presentation Materials Student Pages **Warm-up:** • Gather and sort solid shapes in 2 groups to display: 4 rectangular prisms, including a cube, in one group and 4 other solid shapes in another group.	Lesson 13 Slides Teacher Presentation Materials Student Pages **Activity 1:** • Geoblocks • Solid Shapes **Activity 2:** • Clay • Geoblocks • Solid Shapes	Lesson 14 Slides Teacher Presentation Materials Student Pages **Activity 1:** • Geoblocks • Solid Shapes **Activity 2:** • Create a building with 6–8 solid shapes to display and have a way to hide it from students’ view.	Lesson 15 Slides Teacher Presentation Materials Student Pages **Warm-up:** • Make a tower with 16 connecting cubes. • 10-frames • Connecting Cubes **Activity 1:** • Geoblocks • Solid Shapes **Activity 2:**	Lesson 16 Slides Teacher Presentation Materials Student Pages **Activity 1:** • Geoblocks • Solid Shapes **Activity 2:** • Geoblocks • Solid Shapes

	a set of cards. • Flat Shape Cards K • Geoblocks • Solid Shapes	and one filled with rocks or other heavy objects, labeled "2." **Activity 2:** • Gather assorted classroom objects for students to compare. Cooldown	such as a tall stemmed glass and a short, wide cup for the activity. • Containers of different sizes • Sticky notes **Activity 2:** • Each group of 4 students needs 2 cups or containers that are not easy to compare the capacity visually, such as a short, wide container and a tall, thin container. • Each group of 4 students needs 1 small paper cup, a container filled with water, and a plastic or foil tray • Containers of different sizes	an ice cream cone and cut out 1 set of Examples of Flat Shapes cards to display. • Examples of Flat Shapes Display Cards • Clay • Geoblocks • Solid Shapes **Activity 2:** • Each group of 2 students needs 4–6 different solid shapes. • Intro Geoblocks center (Stage 3)	cube, and two different cylinders to display in the activity synthesis. • Geoblocks • Solid Shapes **Activity 2:** • Each group of 2 students needs at least 6-8 solid shapes from the previous activity. **Activity 3:** • Intro Geoblocks center (Stage 4) • Bags • Geoblocks • Solid Shapes	**Activity 1:** • Gather a variety of rectangular prisms, including cubes, to display. • Use connecting cubes to create a shape that is not a rectangular prism during the activity synthesis **Activity 2:** • Each group of 2 students needs a variety of solid shapes and at least 12 sticks in 2 different lengths. • Clay • Geoblocks • Solid Shapes • Sticks		• Geoblocks • Solid Shapes **Activity 3:** • Intro Match Mine Center (Stage 2) • Folders • Solid Shapes	• Each group of 4 students needs 6 cubes, 6 cylinders, and 6 cones.	
Assessment	**Formative Assessment Strategies: observation, questioning, student discourse.** **See Checkpoint B Document , Checkpoint B Teacher Guide , Grade K Unit 7 I Can Self Assessment Section B Practice Problems**									

	Unit 7 End of Unit Assessment and Unit 7 End of Unit Assessment Teacher Guide									
Centers Materials	Counting Collections (Stage 1) Match Mine (Stage 1) Shake and Spill (Stages 1-4)	Counting Collections (Stage 1) Match Mine (Stage 1) Shake and Spill (Stages 1-4)	Counting Collections (Stage 1) Match Mine (Stage 1) Shake and Spill (Stages 1-4)	Geoblocks (Stages 1-3) Counting Collections (Stage 1) Match Mine (Stage 1) Shake and Spill (Stages 1-4)	Counting Collections (Stage 1) Match Mine (Stage 1) Shake and Spill (Stages 1-4)	Build Shapes (Stages 1-3) Geoblocks (Stages 1-4) Counting Collections (Stage 1) Match Mine (Stage 1) Shake and Spill (Stages 1-4)	Build Shapes (Stages 1-3) Geoblocks (Stages 1-4) Counting Collections (Stage 1) Match Mine (Stage 1) Shake and Spill (Stages 1-4)	Build Shapes (Stages 1-3) Geoblocks (Stages 1-4) Counting Collections (Stage 1) Shake and Spill (Stages 1-4)	Build Shapes (Stages 1-3) Geoblocks (Stages 1-4) Counting Collections (Stage 1) Match Mine (Stages 1 and 2) Shake and Spill (Stages 1-4)	Build Shapes (Stages 1-3) Geoblocks (Stages 1-4) Counting Collections (Stage 1) Match Mine (Stages 1 and 2) Shake and Spill (Stages 1-4)

Making Meaning:

In this series of lessons, students will be making meaning of two-dimensional and three-dimensional shapes. Through this work, students will continue to develop their sense of counting concepts as they work with different collections of shapes. Students will be learning about the different attributes of two-dimensional and three-dimensional shapes such as sides, weight, and capacity. As students are engaging with these lessons, note what words they use to describe these attributes. Although students are not required to utilize formal terms such as faces, vertices, etc., it may be helpful to introduce these words to students as they are using similar ways to describe these attributes.

Lesson 7: Flat and Solid Shapes

- The purpose of this lesson is for students to identify shapes as flat (two-dimensional) or solid (three-dimensional) as they build and sort shapes.
- Lesson 7 Slides
- Teacher Presentation Materials

Lesson 8: Compare Weight

- The purpose of this lesson is to introduce students to the concept and language used to compare weight.
- Lesson 8 Slides
- Teacher Presentation Materials
- Cooldown

Lesson 9: Compare Capacity

- The purpose of this lesson is to introduce students to the concept and language used to compare capacity.

- Lesson 9 Slides
- Teacher Presentation Materials

Lesson 10: Identify and Describe Solid Shapes

- The purpose of this lesson is for students to identify and describe solid shapes.
- Lesson 10 Slides
- Teacher Presentation Materials

Lesson 11: Compare and Sort Solid Shapes

- The purpose of this lesson is for students to compare solid shapes.
- Lesson 11 Slides
- Teacher Presentation Materials

Investigation:

Following Making Meaning, the subsequent lessons provide students with opportunities to deepen their knowledge of two-dimensional and three-dimensional shapes through investigation. Students will be exploring shapes by building, describing, and comparing through the lessons. One key feature of these lessons is exploration. Provide students with opportunities to utilize manipulatives in a way that makes sense to them as well identifying shapes in the environment around them. These investigatory lessons will provide students with opportunities to deeply study these concepts and support their work in future sections.

Lesson 12: Build Solid Shapes

- The purpose of this lesson is for students to build solid shapes from components.
- Lesson 12 Slides
- Teacher Presentation Materials

Lesson 13: Describe Solid Shapes Around Us

- The purpose of this lesson is for students to notice and describe the locations of solid shapes in their environment.
- Lesson 13 Slides
- Teacher Presentation Materials

Lesson 14: Compose with Solid Shapes

- The purpose of this lesson is for students to compose solid shapes to build new shapes.
- Lesson 14 Slides
- Teacher Presentation Materials

Lesson 15: Build and Count with Solid Shapes

- The purpose of this lesson is for students to build with solid shapes to reinforce counting and comparing concepts.
- Lesson 15 Slides
- Teacher Presentation Materials

Create and Produce:

In Activity 1, students are asked to use solid shapes to make a model of the classroom. Provide students with 10 minutes of independent thinking time to determine which objects they want to represent and how they will represent them. It may be helpful to provide students with an anchor chart that showcases the different shapes that are available for students to represent with. If students are unsure which objects in the classroom to represent, consider asking: "If you had to tell someone about our classroom who has never been here before, what would you tell them? How could you represent ____ with the solid shapes?"

Lesson 16: Represent the Classroom with Shapes

- The purpose of this lesson is for students to use solid shapes to make a model of the classroom.
- Teacher 16 Slides
- Teacher Presentation Materials

Communicate and Present:

After students have developed their model of the classroom, Activity 2 provides students with the opportunity to explain their model to classmates as well as provide feedback to one another. To support students, it may be helpful to provide the following questions that students can utilize as they are engaging in their Gallery Walk "Can you tell me about your model? What do the shapes represent?" Providing these questions gives all students an opportunity to produce language.

Activity 2 of Lesson 16: Represent the Classroom with Shapes

- The purpose of this activity is for students to revise their classroom models. Students go on a gallery walk to see the models of their classmates. Describing their model to their peers and seeing other models helps students to develop ideas for how to add to or change their model (MP3).

Reflection:

Ask students to reflect on the following questions: "What is something that you got even better at in this unit? What did you do to help yourself get better at it?" You may also utilize the following IM Reflection Practices.

- IM Reflection Practices

Notes: Follow lessons in numerical order	Complete File with Resources and Task: Task-Based Learning Plan Format for Topic 2