

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 8: Putting It All Together

Duration: 17 days

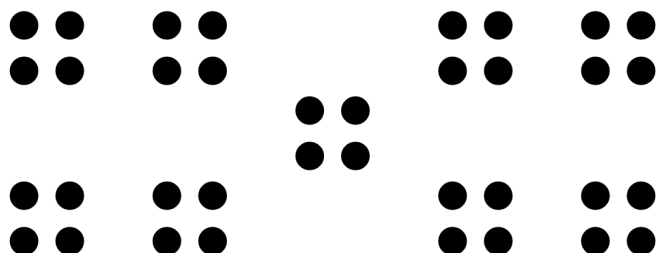
Unit Overview - FOCUS:

In this unit, students revisit major work and fluency goals of the grade, applying their learning from the year.

In section A, students reinforce what they learned about fractions, their size, and their location on the number line. In section B, students deepen their understanding of perimeter, area, and scaled graphs by solving problems about measurement and data. Two of the lessons invite students to design a tiny house that meet certain conditions and calculate the cost for furnishing it.

Section C enables students to work toward multiplication and division fluency goals through games. In the final section, students review major work of the grade as they create activities in the format of the warm-up routines they have encountered throughout the year (Notice and Wonder, Estimation Exploration, Number Talk, and How Many Do You See?).

How many do you see? How do you see them?



The concepts and skills strengthened in this unit prepare students for major work in grade 4: comparing, adding, and subtracting fractions, multiplying and dividing within 1,000, and using the standard algorithm to add and subtract multi-digit numbers within 1 million.

The sections in this unit are standalone sections, not required to be completed in order. Within each section, many lessons can also be completed independently of the ones preceding them. The goal is to

Topic Titles:

- Section A: Fraction Fun
 - Understand a fraction as a number and represent fractions on the number line.
- Section B: Measurement and Data
 - Apply concepts of measurement and data to solve problems.
- Section C: Multiplication and Division Games
 - Develop fluency with single-digit multiplication facts and their related division facts.
- Section D: Create and Design
 - Review the major work of the grade by creating and designing instructional routines.

<p>offer ample opportunities for students to integrate the knowledge they have gained and to practice skills related to the expected fluencies of the grade.</p>		
<p>Coherence: How does this unit build on and connect to prior knowledge and learning?</p> <p>This unit revisits the major work and fluency goals of the grade and provides opportunities for students to apply their learning about multiplication, division, fractions, area, perimeter, and scaled graphs from the year.</p>		
<p>Essential Questions:</p> <ol style="list-style-type: none"> 1. What is a fraction? 2. What is area and perimeter? 3. What is division? 	<p>Enduring Understanding:</p> <ul style="list-style-type: none"> ● Fractions help us to describe parts of a whole. As we develop our understanding of fractions, we make connections between the meaning, language, and notation of fractions - between what fractions represent and how they are expressed in words and numbers. ● 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. ● Division is the process by which we determine how many groups or how many in each group. We can use what we know about multiplication to help us understand division. We can think of division as finding the missing factor in a multiplication problem. 	
<p>What Students Will Know:</p> <ul style="list-style-type: none"> ● We can use area diagrams, fraction strips, and number lines to represent and estimate fractions ● When comparing fractions, we can use the symbols: $<$, $=$, or $>$ ● When designing, it is important to revise our original designs ● When we model with mathematics, we 	<p>What students will do:</p> <ul style="list-style-type: none"> ● Estimate fractions represented in diagrams and on number lines. ● Record the results of comparisons with the symbols $>$, $=$, or $<$. ● Represent fractions on a number line. ● Generalize key ideas about fractions, such as what fractions mean, whole numbers as 	<p>Unit Specific Vocabulary:</p> <p>Academic vocabulary</p>

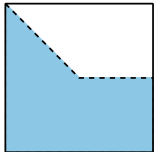
<p>make decisions about qualities, relate measurements and costs, and interpret our results in a context</p> <ul style="list-style-type: none"> ● We can organize large data sets using scaled picture graphs and bar graphs ● Bar and picture graphs help us to ask and answer mathematical questions ● We need to feel comfortable with different multiplication strategies to ensure efficiency, flexibility, and accuracy ● Multiplication and division are related ● Division is an unknown-factor problem ● It is important to have an efficient strategy for finding quotients ● There are mathematical phenomenon in the world around is ● We need to have strategies that we feel comfortable and confident with in order to apply, design, and create 	<p>fractions, and fraction comparisons.</p> <ul style="list-style-type: none"> ● Apply understanding of area and perimeter to solve problems about design. ● Solve problems about the cost of finishing a room in a tiny house. ● Collect categorical data to create a data set with several categories. ● Draw a scaled bar graph to represent a data set with several categories. ● Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. ● Practice multiplication within 100. ● Reflect on multiplication fluency. ● Practice finding products within 100 by playing multiplication games. ● Interpret representations of the relationship between multiplication and division. ● Represent the relationship between multiplication and division. ● Practice dividing whole numbers within 100. ● Apply understanding of equal groups to create a Notice and Wonder activity. ● Apply understanding of equal groups and multiplication to create a How Many Do You See activity. ● Apply understanding of measuring objects to the nearest half and fourth of an inch to create an Estimation Exploration activity. ● Apply understanding of addition and subtraction within 1,000 to create a Number Talk activity. 	
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<p>Entry Level Assessment and Connection to Unit:</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>Any links, attachments and resources:</p> <p>Instructional Routines Document</p> <p>Family Support Materials</p>	<p>Planning Ideas:</p> <p>Components of a Typical IM Lesson</p> <p>What To Know About IM When Planning</p> <p>Where to Find the Mathematical Practices in the Units</p> <p>Assessing the Mathematical Practices</p>

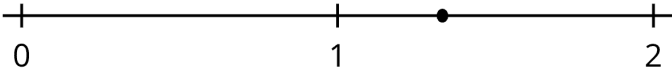
Topic # 1 (Section A)	Topic Name: Section A - Fraction Fun	Duration: Recommended: 3 days
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Topic Description:
 In this section, students revisit and build on important fraction ideas that they have learned in the course. They think about different ways to represent fractions and to estimate the size of fractions presented in different forms: as an area diagram, a shaded strip, and a number line.

What fraction of the square is shaded?



What number is represented by the point on the number line?



Students also practice identifying and locating fractions on the number line, using tape to create a number line that shows a large number of fractions.

Later in the section, students consolidate their understanding by analyzing general statements about fractions (for instance, “a fraction is a number less than 1,” or “whole numbers are fractions”). They express their agreement or disagreement with the statements and have the chance to revise their thinking upon discussions with others.

Section Learning Goals

- Understand a fraction as a number and represent fractions on the number line.

<p>Competencies Addressed: 3.NF.A.1, 3.NF.A.2, 3.NF.A.3</p> <p>Understanding and Applying Number Systems</p> <p>Indicator 3 - I understand fractions hold value.</p> <p>Indicator 4 - I can apply my understanding of fractions for equivalence and comparing.</p>	<p>Essential Question and Enduring Understanding Addressed in this Topic:</p> <p>What is a fraction?</p> <p>Fractions help us to describe parts of a whole. As we develop our understanding of fractions, we make connections between the meaning, language, and notation of fractions - between</p>
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	what fractions represent and how they are expressed in words and numbers.
<p>In this Topic, students will know:</p> <ul style="list-style-type: none"> ● We can use area diagrams, fraction strips, and number lines to represent and estimate fractions ● When comparing fractions, we can use the symbols: $<$, $=$, or $>$ 	<p>Topic Vocabulary:</p> <p>Academic vocabulary</p>
<p>In this Topic, students will be able to:</p> <ul style="list-style-type: none"> ● Estimate fractions represented in diagrams and on number lines. ● Record the results of comparisons with the symbols $>$, $=$, or $<$. ● Represent fractions on a number line. ● Generalize key ideas about fractions, such as what fractions mean, whole numbers as fractions, and fraction comparisons. 	<p>Plan for Student Reflection:</p> <p>Student Journal Prompts and Reflection Practices</p>
	<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 - Fraction Fun		Grade Level and Unit: Grade 1, Unit	
Description of Task: Students think about and discuss statements that address their understanding of important ideas about fractions.		Purpose of Task: The purpose of this lesson is for students to consider statements about fractions that will help them solidify their understanding of fractions as numbers.	
Background of Students/Learning Progression: In previous lessons, students learned what fractions are and how to represent fractions with area diagrams, fraction strips, and on the number line. Students also compared fractions and recognized and generated equivalent fractions.		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: Estimation Exploration with Fractions	L2: Create Your Own Number Line	L3: Fractions Round Table
Learning Cycle Model	Making Meaning	Investigation	Create and Produce
Naugatuck Math Competency	3.NF.3	3.NF.3, 3.NF.4	3.NF.3, 3.NF.4
Math Practice Standards	MP 7	MP 7	MP 3, 6
Lesson Purpose	The purpose of this lesson is for students to practice reasoning about fraction representations through estimation.	The purpose of this lesson is for students to create their own number line to represent and compare fractions.	The purpose of this lesson is for students to consider statements about fractions that will help them solidify their understanding of fractions as numbers.
Teacher Facing Learning Goal	Estimate fractions represented in diagrams and on number lines.	<ul style="list-style-type: none"> Record the results of comparisons with the symbols $>$, $=$, or $<$. Represent fractions on a number line. 	Generalize key ideas about fractions, such as what fractions mean, whole numbers as fractions, and fraction comparisons.
Vocabulary Focus			

Lesson Materials/ Resources	Lesson 1 Slides Teacher Materials Student Pages	Lesson 2 Slides Teacher Materials Student Pages Activity 1: Each group of 3-4 students needs a roll of tape and a marker. Materials to Gather Markers Tape (painter's or masking)	Lesson 3 Slides Teacher Materials Student Pages
	Cooldown: Fraction Representations	Cooldown: Where Do I Go?	Cooldown: Round Table Reflection
Assessment	Formative Assessment Strategies: observation, questioning, student discourse: Monitoring Sheet		

Making Meaning:

[Lesson 1: Estimation Explorations with Fractions](#)

- The purpose of this lesson is for students to practice reasoning about fraction representations through estimation.
- [Teacher presentation materials](#)
- [Slides](#)

Investigate:

[Lesson 2: Create Your Own Line](#)

- The purpose of this lesson is for students to create their own number line to represent and compare fractions.
- [Teacher presentation materials](#)
- [Slides](#)

Create and Produce:

[Lesson 3: Fractions Round Table](#)

- The purpose of this lesson is for students to consider statements about fractions that will help them solidify their understanding of fractions as numbers.
- [Teacher presentation materials](#)
- [Slides](#)

<p>Communicate and Present: “If you wanted to find out exactly what fraction of the square is shaded, how would you go about doing that?”</p> <ul style="list-style-type: none">● 2 minutes: partner discussion● Share and record responses.	<p>Reflection: Consider asking: “Is anyone’s estimate less than ____? Is anyone’s estimate greater than ____?” “Based on this discussion does anyone want to revise their estimate?”</p>
<p>Notes: Follow lessons in numerical order.</p>	<p>Complete File with Resources and Task: Task-Based Learning Plan Format for Topic 1</p>

Topic # 2 (Section B)

Topic Name: Section B - Measurement and Data

Duration:

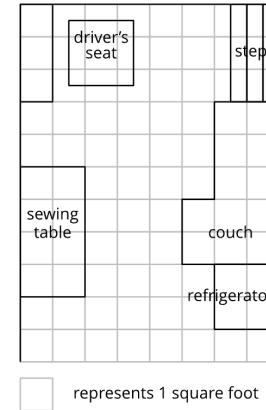
Recommended: 4 days

Topic Description:

In this section, students further investigate ideas on measurement (area and perimeter) and data (scaled graphs).

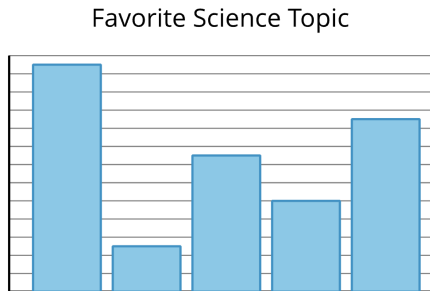
Students begin by analyzing features of tiny houses. They then use their knowledge of shapes, perimeter, and area to design their own tiny house, and then write questions about the area and perimeter of shapes in their design.

Later, students apply their knowledge of addition and subtraction to calculate the cost of finishing a room in their tiny house.



In the second half of the section, students focus on data collection and representation. They think about survey questions to ask others in the class and in the school, how to present the answer choices, and how to collect and record a large set of data.

Students then conduct their survey in the school community, organize their data, and represent the data with a scaled graph. They also ask and answer questions about the data.



Write questions that could be answered with your bar graph by completing these sentences.

How many more students liked _____ than _____ ?

How many fewer students liked _____ than _____ ?

<p>Section Learning Goals</p> <ul style="list-style-type: none"> Apply concepts of measurement and data to solve problems. 	
<p>Competencies Addressed:</p> <p>Understanding and Applying Number Systems</p> <p>Indicator 5 - I can use my understanding of place value and properties of operations to add and subtract whole numbers.</p> <p>Operations and Algebraic Thinking</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 3 - I can represent, interpret and display data using a variety of visual models.</p> <p>Indicator 4 - I understand and can apply concepts of area and perimeter.</p>	<p>Essential Question and Enduring Understanding Addressed in this Topic:</p> <p>What are area and perimeter?</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"> When designing, it is important to revise our original designs When we model with mathematics, we make decisions about qualities, relate measurements and costs, and interpret our results in a context We can organize large data sets using scaled picture graphs and bar graphs Bar and picture graphs help us to ask and answer mathematical questions 	<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 understanding of area and perimeter to solve problems about design. Solve problems about the cost of finishing a room in a tiny house. Collect categorical data to create a data set with several categories. Draw a scaled bar graph to represent a data set with several categories. 	<p>Plan for Student Reflection:</p> <p>Student Journal Prompts and Reflection Practices</p>

- Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.

Plan for Teacher Reflection:

- 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 - Measurement and Data		Grade Level and Unit: Grade 3, Unit		
Description of Task: Students will draw a scaled bar graph to represent a data set with several categories and solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.		Purpose of Task: The purpose of this lesson is for students to draw a scaled bar graph to represent a data set with several categories.		
Background of Students/Learning Progression: In a previous lesson, students used a survey to collect data. In this lesson, they represent their data set with a scaled bar graph. Then, students ask and answer questions about the information presented in their scaled bar graphs.		Ensure all competencies are addressed in the task: <input type="checkbox"/> Yes, all competencies are addressed <input type="checkbox"/> No - Task needs modification		
Section B				
IM Lesson	L4: Tiny House: Design and Solve	L5: Tiny House: Cost	L6: Survey the Class, Survey the School	L7: Graph and Answer
Learning Cycle Model	Making Meaning	Making Meaning	Investigate	Create and Produce
Naugatuck Math Competency	3.MD.4	3.NS.5, 3.OA.5	Building Towards 3.MD.3	3.MD.3
Math Practice Standards	MP 2, 3, 4	MP 4	—	MP 2, 6
Lesson Purpose	The purpose of this lesson is for students to design and solve problems about a tiny house.	The purpose of this lesson is for students to apply what they’ve learned about operations to calculate the cost to finish a space in a tiny house.	The purpose of this lesson is for students to use a survey to collect a data set with several categories.	The purpose of this lesson is for students to draw a scaled bar graph to represent a data set with several categories.

Teacher Facing Learning Goal	Apply understanding of area and perimeter to solve problems about design.	Solve problems about the cost of finishing a room in a tiny house.	Collect categorical data to create a data set with several categories.	<ul style="list-style-type: none"> ● Draw a scaled bar graph to represent a data set with several categories. ● Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.
Vocabulary Focus				
Lesson Materials/ Resources	<p style="text-align: center;">Lesson 4 Slides</p> <p style="text-align: center;">Teacher Materials</p> <p style="text-align: center;">Student Pages</p> <p>Activity 2: Each student needs the tiny house design they created in the previous activity.</p> <p>Materials to Gather Materials from a previous activity</p>	<p style="text-align: center;">Lesson 5 Slides</p> <p style="text-align: center;">Teacher Materials</p> <p style="text-align: center;">Student Pages</p> <p>Activity 1: Each student needs the tiny house design they created in the previous lesson.</p> <p>Materials to Gather Materials from a previous lesson</p>	<p style="text-align: center;">Lesson 6 Slides</p> <p style="text-align: center;">Teacher Materials</p> <p style="text-align: center;">Student Pages</p> <p>Activity 2: A blackline master is provided to record students’ survey results, but they could also record their results using lined paper.</p> <p>Materials to Copy Survey a Large Group</p>	<p style="text-align: center;">Lesson 7 Slides</p> <p style="text-align: center;">Teacher Materials</p> <p style="text-align: center;">Student Pages</p> <p>Activity 1: Each group of 4 needs the survey data from the previous lesson.</p> <p>Activity 2: Each group needs the bar graphs they created in the previous activity.</p> <p>Materials to Gather Materials from a previous activity Materials from a previous lesson</p> <p>Materials to Copy Draw Scaled Graphs</p>
	Cooldown: Area and Perimeter	Cooldown: Find the Cost?	Cooldown: Reflect on Collecting Data	Cooldown: Graph Question

Making Meaning:**[Lesson 4: Tiny House: Design and Solve](#)**

- The purpose of this lesson is for students to design and solve problems about a tiny house.
- [Teacher presentation materials](#)
- [Slides](#)

[Lesson 5: Tiny House: Cost](#)

- The purpose of this lesson is for students to apply what they've learned about operations to calculate the cost to finish a space in a tiny house.
- [Teacher presentation materials](#)
- [Slides](#)

Investigate:**[Lesson 6: Survey the Class, Survey the School](#)**

- The purpose of this lesson is for students to use a survey to collect a data set with several categories.
- [Teacher presentation materials](#)
- [Slides](#)

Create and Produce:**[Lesson 7: Graph and Answer](#)**

- The purpose of this lesson is for students to draw a scaled bar graph to represent a data set with several categories.
- [Teacher presentation materials](#)
- [Slides](#)

Communicate and Present:

Invite 2-3 groups to share their graphs.

“How did you decide what scale to use for your graphs?” (We made sure that every category would fit on the graph. We thought about making the graph easy to read.)

Reflection:

“What was the most interesting question you answered about a scaled graph?”

Notes: Follow lessons in numerical order.

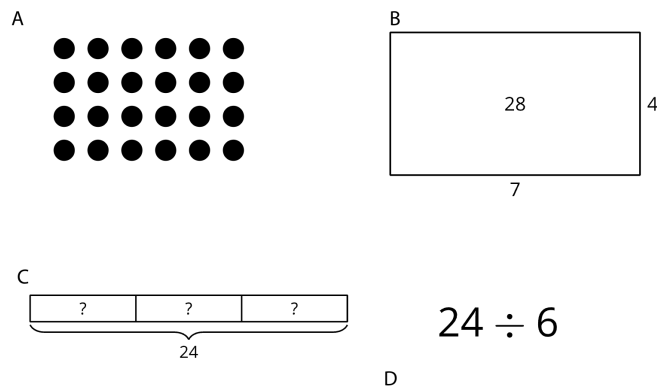
Complete File with Resources and Task:

Task-Based Learning Plan Format for Topic 2

Topic # 3 (Section C)	Topic Name: Section C - Multiplication and Division Games	Duration: Recommended: 4 days
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Topic Description:
 In this section, students continue their work of building fluency with multiplication and division. They begin by reflecting on the products within 100 they know from memory or can find quickly and the ones they don't know yet. Students then practice multiplication facts (focusing on the ones that are least familiar to them) through games.
 Next, students reinforce their understanding of the connections between multiplication and division by matching equations and diagrams that represent the same quantities and relationships. For instance, the equations $56 \div 7 = ?$ and $? \times 7 = 56$, and a diagram of a rectangle with an area of 56 and a side length of 7 can all describe the same situation.

Here is another example that shows different representations of multiplication and division:



Students then play games to improve their facility with multiplication and division. They revisit familiar center activities and learn new ones. Compare, Rectangle Rumble, and How Close? are the centers used in this section.

Section Learning Goals

- Develop fluency with single-digit multiplication facts and their related division facts.

Competencies Addressed:	Essential Question and Enduring Understanding Addressed in this Topic:
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<p>Operations and Algebraic Thinking</p> <p>Indicator 3 - I can apply the properties of operations to multiply and divide.</p> <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>What is division?</p> <p>Division is the process by which we determine how many groups or how many in each group. We can use what we know about multiplication to help us understand division. We can think of division as finding the missing factor in a multiplication problem.</p>
<p>In this Topic, students will know:</p> <ul style="list-style-type: none"> ● We need to feel comfortable with different multiplication strategies to ensure efficiency, flexibility, and accuracy ● Multiplication and division are related ● Division is an unknown-factor problem ● It is important to have an efficient strategy for finding quotients 	<p>Topic Vocabulary:</p> <p>Academic vocabulary</p>
<p>In this Topic, students will be able to:</p> <ul style="list-style-type: none"> ● Practice multiplication within 100. ● Reflect on multiplication fluency. ● Practice finding products within 100 by playing multiplication games. ● Interpret representations of the relationship between multiplication and division. ● Represent the relationship between multiplication and division. ● Practice dividing whole numbers within 100. 	<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 - Multiplication and Division Games	Grade Level and Unit: Grade 3, Unit 8
<p>Description of Task: In this lesson, students continue to develop fluency with dividing whole numbers within 100 by playing games. Students should have an efficient strategy for finding quotients, but they do not need to know quotients from memory. If students need additional support with the concepts in this lesson, refer back to Unit 4, Section D in the curriculum materials.</p>	<p>Purpose of Task: The purpose of this task is for students to develop fluency with dividing within 100.</p>
<p>Background of Students/Learning Progression: Students studied division and different strategies to divide in Unit 4.</p>	<p>Ensure all competencies are addressed in the task:</p> <p><input type="checkbox"/> Yes, all competencies are addressed <input type="checkbox"/> No - Task needs modification</p>

Getting Started:

Section C				
IM Lesson	L8: Multiplication Center Day	L9: Multiplication Game Day	L10: Multiplication and Division	L11: Division Game Day
Learning Cycle Model	Making Meaning	Making Meaning	Investigate	Create and Produce
Naugatuck Math Competency	3.OA.4	3.OA.4	3.OA.3, 3.OA.5	3.OA.4
Math Practice Standards	MP 7	—	MP 2, 6	MP 7
Lesson Purpose	The purpose of this lesson is for students to evaluate their fluency	The purpose of this lesson is for students to practice multiplying	The purpose of this lesson is for students to use a variety of	The purpose of this lesson is for students to develop fluency with

	with multiplication within 100.	within 100.	representations to illustrate the relationship between multiplication and division to develop fluency with division within 100.	dividing within 100.
Teacher Facing Learning Goals	<ul style="list-style-type: none"> Practice multiplication within 100. Reflect on multiplication fluency. 	Practice finding products within 100 by playing multiplication games.	<ul style="list-style-type: none"> Interpret representations of the relationship between multiplication and division. Represent the relationship between multiplication and division. 	Practice dividing whole numbers within 100.
Vocabulary Focus				
Lesson Materials/ Resources	<p>Lesson 8 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p> <p>Activity 1:</p> <ul style="list-style-type: none"> Gather materials from Multiplication Card Sort, an activity from a previous unit. If remaking the cards, create a set of cards from the blackline master for each group of 2. <p>Activity 2:</p> <p>Create a set of Compare Stage 3 cards from the blackline master for each group of 2.</p> <p>Materials to Gather</p> <p>Materials from a previous lesson</p> <p>Materials to Copy</p> <p>Card Sort Multiplication Cards</p> <p>Card Sort: Multiplication Recording</p>	<p>Lesson 9 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p> <p>Activity 2:</p> <p>Gather materials from:</p> <ul style="list-style-type: none"> Compare, Stage 3 (previous lesson) How Close, Stage 5 Rectangle Rumble, Stage 3 <p>Materials to Gather</p> <p>Materials from previous centers</p> <p>Materials to Copy</p> <p>Rectangle Rumble Stage 3 Grid</p> <p>Number Cards (0-10)</p> <p>Rectangle Rumble Stage 3 Spinners</p> <p>How Close? Stage 5 Recording Sheet</p>	<p>Lesson 10 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p> <p>Activity 1:</p> <p>The blackline master has 24 cards. Copy and cut enough cards so that each student can have one card.</p> <p>Activity 2:</p> <p>Keep posters from the previous activity displayed.</p> <p>Materials to Gather</p> <p>Glue or tape</p> <p>Materials from a previous activity</p> <p>Tools for creating a visual display</p> <p>Materials to Copy</p> <p>Find the Match</p>	<p>Lesson 11 Slides</p> <p>Teacher Materials</p> <p>Student Pages</p> <p>Activity 2:</p> <p>Gather materials from: Compare, Stage 4</p> <p>Materials to Gather</p> <p>Materials from previous centers</p> <p>Number cubes</p>

	Sheet Compare Stage 3 Multiplication Cards			
	Cooldown: Multiplication Reflection	Cooldown: Reflect on Multiplication	Cooldown: Relate Multiplication to Division	Cooldown: Reflect on Division Games
Assessment	Formative Assessment Strategies: observation, questioning, student discourse: Monitoring Sheet			
Centers Materials	Compare Stage 3 Card Sort: Multiplication	Compare, Stage 3 How Close?, Stage 5 Rectangle Rumble, Stage 3	Card Sort: Find the Match	Compare, Stage 4

Making Meaning:

[Lesson 8: Multiplication Center Day](#)

- The purpose of this lesson is for students to evaluate their fluency with multiplication within 100.
- [Teacher presentation materials](#)
- [Slides](#)

[Lesson 9: Multiplication Game Day](#)

- The purpose of this lesson is for students to practice multiplying within 100.
- [Teacher presentation materials](#)
- [Slides](#)

Investigate:

[Lesson 10: Multiplication and Division](#)

- The purpose of this lesson is for students to use a variety of representations to illustrate the relationship between multiplication and division to develop fluency with division within 100.
- [Teacher presentation materials](#)
- [Slides](#)

Create and Produce:

[Lesson 11: Division Game Day](#)

- The purpose of this lesson is for students to develop fluency with dividing within 100.

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

Communicate and Present:

Have students answer the following questions either whole group or small group:

- “How was having an efficient way to divide helpful as you played Race to 1?”
- “What was a helpful strategy as you played Race to 1?”
-

Reflection:

“How have you made progress in your division fluency this year?”

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 - Create and Design	Duration: Recommended: 4 days
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Topic Description:
Throughout the course, students have engaged in warm-up routines such as How Many Do You See, Exploration Estimation, Which One Doesn't Belong, True or False, and Number Talk. This section enables them to apply the mathematics they have learned (the four operations, fractions, and measurement, in particular) to design warm-ups that incorporate some of these routines.

Each lesson is devoted to a particular routine. Students begin by completing partially created tasks. They practice anticipating responses that others might give to the prompts they pose.

What do you notice? What do you wonder?



Along the way, students gain the skills and insights needed to create an activity from scratch or with minimal scaffolding. In each lesson, students have the option to facilitate their activity with another group in the class.

Section Learning Goals

- Review the major work of the grade by creating and designing instructional routines.

<p>Competencies Addressed:</p> <p>Understanding and Applying Number Systems</p>	<p>Essential Question and Enduring Understanding Addressed in this Topic:</p> <p>What is a fraction?</p>
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<p>Indicator 5 - I can use my understanding of place value and properties of operations to add and subtract whole numbers.</p> <p>Operations and Algebraic Thinking</p> <p>Indicator 2 - I can represent and interpret multiplication and division expressions.</p> <p>Measurement and Data Investigations</p> <p>Indicator 3 - I can represent, interpret and display data using a variety of visual models.</p>	<p>What are area and perimeter?</p> <p>Fractions help us to describe parts of a whole. As we develop our understanding of fractions, we make connections between the meaning, language, and notation of fractions - between what fractions represent and how they are expressed in words and numbers.</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"> • There are mathematical phenomenon in the world around is • We need to have strategies that we feel comfortable and confident with in order to apply, design, and create 	<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 understanding of equal groups to create a Notice and Wonder activity. • Apply understanding of equal groups and multiplication to create a How Many Do You See activity. • Apply understanding of measuring objects to the nearest half and fourth of an inch to create an Estimation Exploration activity. 	<p>Plan for Student Reflection:</p> <p>Student Journal Prompts and Reflection Practices</p> <hr/> <p>Plan for Teacher Reflection:</p>

- Apply understanding of addition and subtraction within 1,000 to create a Number Talk activity.

- 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 - Create and Design	Grade Level and Unit: Grade 3, Unit
<p>Description of Task: This lesson provides an opportunity to observe the ways in which students make use of structure and repeated reasoning to design a Number Talk. The warm-up is followed by four Number Talk activities. In the first activity, students are given three expressions and asked to write the missing expression. In each of the subsequent activities, one additional expression is missing. In the last activity, students write all four expressions of a Number Talk.</p>	<p>Purpose of Task: The purpose of this task is for students to apply their understanding of addition and subtraction to create a Number Talk activity.</p>
<p>Background of Students/Learning Progression: This task is part of a culmination of their learning for the year. Students will work with addition and subtraction within 1,000.</p>	<p>Ensure all competencies are addressed in the task:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes, all competencies are addressed <input type="checkbox"/> No - Task needs modification

Section D				
IM Lesson	L12: Notice and Wonder	L13: How Many Do You See?	L14: Estimation Exploration	L15: Number Talk
Learning Cycle Model	Making Meaning	Investigate	Investigate	Create and Produce
Naugatuck Math Competency	3.OA.2	3.OA.2	3.MD.3	3.NS.5
Math Practice Standards	—	—	—	—
Lesson Purpose	The purpose of this lesson is for students to apply their	The purpose of this lesson is for students to apply their	The purpose of this lesson is for students to apply their	The purpose of this lesson is for students to apply their

	understanding of equal groups to create a Notice and Wonder activity.	understanding of equal groups and multiplication to create a How Many Do You See activity.	understanding of measurement of fractional lengths to create an Estimation Exploration activity.	understanding of addition and subtraction to create a Number Talk activity.
Teacher Facing Learning Goals	Apply understanding of equal groups to create a Notice and Wonder activity.	Apply understanding of equal groups and multiplication to create a How Many Do You See activity.	Apply understanding of measuring objects to the nearest half and fourth of an inch to create an Estimation Exploration activity.	Apply understanding of addition and subtraction within 1,000 to create a Number Talk activity.
Vocabulary Focus				
Lesson Materials/ Resources	Lesson 12 Slides Teacher Materials Student Pages Activity 1: Each group of 3-4 needs picture books to use as they create their Notice and Wonder activity. Activity 2: Each group of 3-4 from the previous activity needs 1 piece of chart paper and a marker. Materials to Gather Chart paper, Markers, Picture books	Lesson 13 Slides Teacher Materials Student Pages Activity 2: Each group of 3-4 from the previous activity needs 1 piece of chart paper and a marker. Materials to Gather Chart paper, Markers	Lesson 14 Slides Teacher Materials Student Pages Activity 1: Each group of 2-3 needs picture books and a ruler to design their Estimation Exploration activity. Activity 2: Each group of 2–3 from the previous activity needs 1 piece of chart paper and a marker. Materials to Gather Chart paper, Markers, Picture books, Rulers	Lesson 15 Slides Teacher Materials Student Pages
	Cooldown: Notice and Wonder Reflection	Cooldown: How Many Do You See Reflection	Cooldown: Estimation Exploration Reflection	Cooldown: Number Talk Reflection
Assessment	Formative Assessment Strategies: observation, questioning, student discourse: Monitoring Sheet See Unit 8 Assessment , Unit 8 Assessment Teacher Guide			
Centers Materials				

Making Meaning:

[Lesson 12: Notice and Wonder](#)

- The purpose of this lesson is for students to apply their understanding of equal groups to create a Notice and Wonder activity.
- [Teacher presentation materials](#)
- [Slides](#)

Investigate:

[Lesson 13: How Many Do You See?](#)

- The purpose of this lesson is for students to apply their understanding of equal groups and multiplication to create a How Many Do You See activity.
- [Teacher presentation materials](#)
- [Slides](#)

[Lesson 14: Estimation Exploration](#)

- The purpose of this lesson is for students to apply their understanding of measurement of fractional lengths to create an Estimation Exploration activity.
- [Teacher presentation materials](#)
- [Slides](#)

Create and Produce:

[Lesson 15: Number Talk](#)

- The purpose of this lesson is for students to apply their understanding of addition and subtraction to create a Number Talk activity.
- [Teacher presentation materials](#)
- [Slides](#)

Communicate and Present:

Select groups to share their last expression and their reasoning. As each group shares, ask others in the class if they had used the same strategy to write their expression and if they arrived at a similar expression.

Select groups to share their completed Number Talk and ask the class how the groups might have chosen the expressions.

Reflection:

“What were some important things you considered as you created expressions for your Number Talk? Why were these things important?”

<p>Invite 1–2 groups to share their completed Number Talk or to facilitate it for the class. Alternatively, if time permits, allow groups to take turns facilitating their Number Talk with another group.</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 1</p>