THE SCHOOL DISTRICT OF LEE COUNTY

Curriculum Overview

Mathematics – Grade Three (Course #5012050)

Adopted Instructional Materials: *Houghton Mifflin Harcourt, Go Math!*

Big Idea 1 Data	Big Idea 2 Place Value Addition and Subtraction	Big Idea 3 Multiplication Strategies within 100	Big Idea 4 Division Strategies within 100	Big Idea 5 Exploring Fractions	Big Idea 6 Time and Measurement	Big Idea 7 Describe and Analyze 2-D Shapes	Big Idea 8 Mastery of Grade Three
Chapter 2	Chapter 1	Chapters 3, 4, & 5	Chapters 6 & 7	Chapters 8 & 9	Chapters 10 & 11	Chapter 12	Critical Areas

Quarter 1	Quarter 2	Quarter 3	Quarter 4

Big Ideas in red shading denote critical areas for 3rd grade. An explanation of the critical areas is provided in the Mathematical Content Standards below.
Big Ideas in blue shading denote supporting areas for 3rd grade. These Big Ideas are essential to future critical areas within and across grade levels.

Curriculum Notes: 3rd Grade Course Description

- Mathematical Content Standards: In Grade 3, instructional time should focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, especially unit fractions (fractions with numerator 1); (3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes.
    - (1) Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.
    - (2) Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., 15/9 = 5/3), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.
    - (3) Students recognize area as an attribute of two-dimensional regions. They measure the area of a shape by finding the total number of same-size units of area required to cover the shape without gaps or overlaps, a square with sides of unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle.

- (4) Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

- Standards for Mathematical Practice: The teacher's role in the development of students' proficiency of mathematical practice across all content standards is essential.
  - The teacher creates daily opportunities and establishes classroom norms that allow students to:
    - develop mathematical understanding from prior knowledge
    - build connections
    - foster each student's accountability to think, reason, and explain
  - Students must be shown how to apply the mathematical practices to new content.
  - It is through dialogue and discussion of different strategies that students become knowledgeable, independent learners.
  - While the Standards for Mathematical Practice are woven throughout mathematics instruction, the Grade 3 Academic Plan indicates the focused Standards for Mathematical Practice for each Big Idea of instruction.
  - Mathematical Practice Resources: Implementing Math Practices, Mathematical Practices Progression, Mathematical Practice Question Stems

- Additional Resource: Achieve the Core Go Math Guidance Documents
  - **Please use as additional support and guidance keeping in mind this does not address Florida's amended standards. Please use your MAFS when using this resource.**

Big Idea 1
Quarter 1

Academic Plan
Mathematics – Grade Three (Course #5012050)
3rd Grade Math CCE Blueprint

Suggested Big Idea Length:
12 – 16 days

Adopted Instructional Materials: Houghton Mifflin Harcourt, Go Math!

Big Idea Description: *Data* (Bar Graphs, Line Plots and Picture Graphs)
Students will analyze graphs with words such as most, least, minimum and maximum to provide a conceptual foundation for representing data. Students will collect data and the intent of the data collection should help to determine the choice of data display. Students will use a data set to create original graphs.

Manipulatives: Below are some of the manipulatives that should be included in the instruction of Big Idea 2. View the attached document, Grade 3 Big Idea 1 Manipulatives, for a comprehensive list of manipulatives and their suggested usage during Big Idea 2.

- Bar Graph Pattern
- Clothes-pins
- Connecting Cubes
- Craft Sticks
- Masking Tape
- Square Sticky Notes
- Two-Color Counters

Teacher Note:
Additional days have been included in Big Idea 1 to foster development of classroom routines and procedures to create an environment of collaboration and community.

Begin your math journals on day one. Suggest that students keep a math journal for daily/weekly problems that encourage students to justify their thinking, illustrate new math vocabulary, and/or can identify a specific concept in the real-world.

The standards in Big Idea 1 can be addressed through *"getting to know you"* activities, for example: How Do You Go Home?, Number of Letters in Your Name, Home Lunch or School Lunch. Be sure to revisit data concepts throughout the school. It is suggested that teachers may want to begin frontloading time and fractions.

Standards

Math Content Standards	Cross Content Standards
MAFS.3.MD.2.3: Draw a scaled picture graph and 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. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*	**LAFS.3.SL.1.1:** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 *topics and texts*, building on others' ideas and expressing their own clearly. **LAFS.3.SL.1.2:** Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

MAFS.3.MD.2.4: Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters. **MAFS.3.OA.4.8**: Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **MAFS.3.NBT.1.2**: Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	**LAFS.3.SL.1.3:** Ask and answer questions about information from a speaker, offering appropriate elaboration and detail. **LAFS.3.W.1.2:** Write informative/explanatory texts to examine a topic and convey ideas and information clearly. **SC.3.N.1.3:** Keep records as appropriate, such as pictorial, written, or simple charts and graphs, of investigations conducted. **SS.3.G.1.1:** Use thematic maps, tables, charts, graphs, and photos to analyze geographic information. Suggested Standards for Mathematical Practice **MAFS.K12.MP.1.1**: Make sense of problems and persevere in solving them. • What is the problem asking? • What strategy did you use to solve the problem? • What other way can you show the data to better help you solve the problem? **MAFS.K12.MP.4.1**: Model with mathematics. • How can you use a model to organize data and solve problems? • What conclusions can you make from your model?

Big Idea(s)
Data
Essential Outcome Question(s)
How can you represent and interpret data?

Conceptual Understandings	**Essential Question(s)**
• Read and interpret data in a scaled picture graph and draw a picture graph to show data in a table. • Read and interpret data in a bar graph and draw a bar graph to show data in a table. • Read and interpret data in a line plot and use data to make a line plot. • Determine which type of graph would best represent a set of data.	• How can you collect and organize data? • How can you read and interpret a bar graph? • How can you read and interpret a picture graph? • How can you read and interpret a line plot? • How can you use a data set to choose an appropriate graphical display?

	Aligned Learning Goals	District Adopted Materials	Supplemental Resources	Strategies for Differentiation
Interpret & Represent Data 13 content + 1 progress monitoring check	Interpret and create a bar graph; solve one and two step “how many more” and “how many less” problems *(MD.2.3)*	Go Math! Chapter 2 Achieve the Core Go Math Guidance Documents	• Task Card: Data, Data, Data • Illuminations Lesson: Pizza at Home • CPALMS: This is My Country • Clothespin Activity • CPALMS: Graphs Your Way!	Reteach & Enrichment Support: Interpret and Represent Data in a Graph The above document provides opportunities for reteach and enrichment with the current aligned learning goal.
	Interpret and create a picture graph *(MD.2.3)*			
	Interpret and create a line plot (MD.2.4)			
	Analyze data presented in a graph *(MD.2.3), (NBT.1.2)*			
	Solve two-step word problems using addition and subtraction *(OA.4.8)*			

Instructional Strategies and Resources

Prerequisites from Grade 2:

- Draw a picture graph and bar graph with single unit scale and up to four categories
- Solve simple “put together, take apart and compare” problems; using information from a bar graph

Students should have opportunities reading and solving problems using scaled graphs before being asked to draw one. The following graphs all use five as the scale interval, but students should experience different intervals to further develop their understanding of scale graphs and number facts.

While exploring data concepts, students should be able to do the following: 1) **Pose** a question, 2) **Collect** data, 3) **Interpret** data, and 4) **Analyze** data**.** Students should be graphing data that is relevant to their lives (ex.; “Getting to Know You” survey data) and is in alignment with Class & Team building strategies.

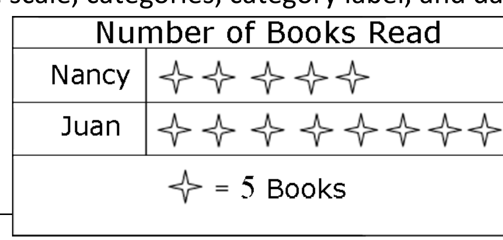
Example:

Pose a question: What are some of the questions that could be asked of the data we see? Students should come up with a question. Collect and organize data: student survey

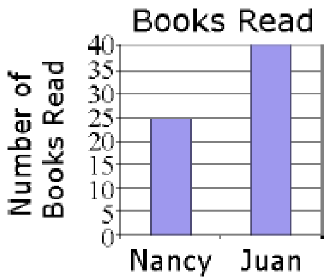
Picture graphs: Scaled picture graphs include symbols that represent multiple units. Below is an example of a picture graph with symbols that represent multiple units. Graphs should include a title, scale, categories, category label, and data. Students need to use both horizontal and vertical bar graphs.

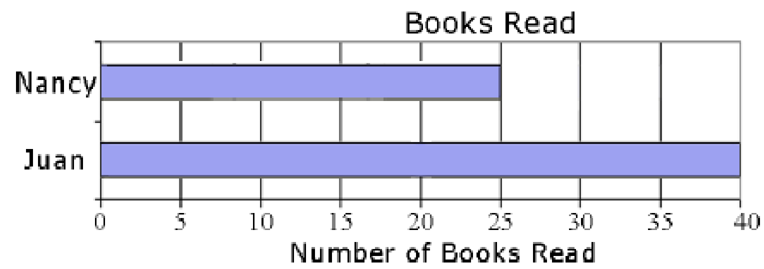
Who read the most books? How can you tell?

- Picture Graph Example:

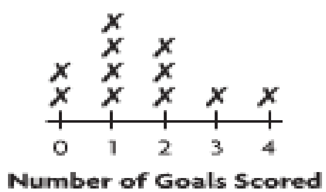


- Single Bar Graphs: Students use both horizontal and vertical bar graphs. Bar graphs include a title, scale, scale label, categories, category label, and data.





- Line Plot Graphs:



Representation of a data set is extended from picture graphs and bar graphs with single-unit scales to scaled picture graphs and scaled bar graphs. Intervals for the graphs should relate to multiplication and division with 100 (product is 100 or less and numbers used in division are 100 or less).

- In picture graphs, use values for the icons in which students are having difficulty with skip counting facts. For example, ○ represents 7 people. If there are three ○, students should use known facts to determine that the three icons represents 21 people.
- The intervals on the vertical scale in bar graphs should not exceed 100.
- Students are to draw picture graphs in which a symbol or picture represents more than one object.
- Bar graphs are drawn with intervals greater than one.
- Ask questions that require students to compare quantities and use mathematical concepts and skills.
- Use symbols on picture graphs that students can easily represent half of, or know how many half of the symbol represents. (ex: circle, heart, smiley face).

Formative Checkpoint: Formative Checkpoint is a continuous process used by teachers and students to utilize formal and informal assessments to elicit evidence regarding the degree to which a particular student or class of students has mastered the aligned learning goals. Based on the evidence collected, teachers adjust their ongoing instructional activities.

The following are suggestions teachers may consider as they plan the Formative Checkpoint they will use for this big idea of instruction.

Resources:

- Chapter 2 Mid-Chapter Checkpoint
- Chapter 2 Diagnostic Interview
- Math Journal Entries

MFAS Tasks 3.MD.2.3:

- Collecting Cans for Recycling
- Lunch Orders
- Flowers in the Garden
- Favorite After School Activity

Sample: Suggested Standards-based Check - Blueprint

- Data; Scoring Rubric

Big Idea 2
Quarter 1

Academic Plan
Mathematics – Grade Three (Course #5012050)

Suggested Big Idea Length:
18 – 22 days

Adopted Instructional Materials: Houghton Mifflin Harcourt, Go Math!

Big Idea Description: *Place Value, Addition, and Subtraction*

Although Big Idea 2 is not considered a critical area for 3rd grade, it does provide the foundation for ALL other critical areas in 3rd grade.

Students will demonstrate an understanding of place value within one thousand to name, order and compare whole numbers. Students will solve problems involving addition and subtraction, identify and explain patterns used to solve those operations, and apply a variety of strategies in order to find sums and differences. Students will use place value understanding and properties of operations to perform multi-digit addition and subtraction. Students are introduced to rounding, which provides students with another strategy to judge the reasonableness of their answers in addition and subtraction situations.

Manipulatives: Below are some of the manipulatives that should be included in the instruction of Big Idea 2. View the attached document, Grade 3 Big Idea 2 Manipulatives, for a comprehensive list of manipulatives and their suggested usage during Big Idea 2.

- Addition Table
- Base-Ten Blocks
- Connecting Cubes
- Grid Paper
- Number Line
- Place-Value Chart
- Two-Color Counters

Teacher Note:
Continue to use math journals on a daily/weekly basis. Student engagement for using manipulatives is necessary for concrete understanding. Note that standard MAFS.3.OA.4.8 only use the **2 operations** for addition and subtraction (not multiplication/division at this time).

Standards

Math Content Standards	Cross Content Standards
MAFS.3.OA.4.8: Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **MAFS.3.OA.4.9**: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.* **MAFS.3.NBT.1.1**: Use place value understanding to round whole numbers to the nearest 10 or 100.	**LAFS.3.SL.1.1:** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 *topics and texts*, building on others' ideas and expressing their own clearly. **LAFS.3.SL.1.2:** Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally. **LAFS.3.SL.1.3:** Ask and answer questions about information from a speaker, offering appropriate elaboration and detail. **LAFS.3.W.1.2:** Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

MAFS.3.NBT.1.2: Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	Suggested Standards for Mathematical Practice **MAFS.K12.MP.2.1**: Reason abstractly and quantitatively. • How do you know your answer is reasonable? • What is a situation that could be represented by this equation? 89 + ___ = 157 **MAFS.K12.MP.4.1**: Model with mathematics. • How can you use a model to solve one- and two-step addition and subtraction problems? **MAFS.K12.MP.6.1**: Attend to precision. • What math vocabulary is important in solving the word problem? • How can you use math vocabulary in your explanation? **MAFS.K12.MP.7.1**: Look for and make use of structure. • What patterns are in our place-value system? • What do you notices about the relationship between each row in the addition table and the row after it? • Explain how you know when the sum of two numbers will be odd or even. • How can you use properties to explain patterns on the addition table?
Big Idea(s)	
Place Value, Addition, and Subtraction	
Essential Outcome Question(s)	
How can you add and subtract whole numbers and decide if the answer is reasonable?	
Conceptual Understandings	**Essential Question(s)**
• A digit has a different value based upon its placement in a number. • Identify and reason with number patterns. • Use and explain strategies for addition and subtraction including properties of operations. • Use estimation and rounding as a skill for checking the reasonableness of an answer. • Understand when an exact answer may not be needed	• How can you identify the value of a digit? • How can you model and represent a number in different ways? • How can you use properties to understand addition and subtraction? • How can you add and subtract numbers within one thousand? • How can you round numbers to the nearest 10 or 100? • How can you use strategies to find sums and differences?

	Aligned Learning Goals (students will be able to)	District Adopted Materials	Supplemental Resources	Strategies for Differentiation
Addition Strategies within 1,000 6 content	Identify number patterns *(OA.4.9)*	Go Math! Chapter 1 Achieve the Core Go Math Guidance Documents	• Task Card: Finding Fibonacci • Task Card: Road Trip FL • Task Card: Candy Bars (Task 1 Addition) • CPALMS: The Power of Patterns • Illustrative Mathematics: The Stamp Collection • www.k-5mathteachingresources.com OA.9 Odd and Even Sums • https://learnzillion.com/ Video: Identify addition and subtraction patterns using a 100s chart Author: Jeanette Simpson	Reteach & Enrichment Support: Addition Strategies within One Thousand The above document provides opportunities for reteach and enrichment with the current aligned learning goal.
	Use place value to add within 1,000 *(NBT.1.2)*			
	Use the Commutative, Associative and Identity Properties of Addition to find sums *(NBT.1.2)*			
	Use a variety of strategies to find sums; break apart, number line, mental math, friendly numbers, compatible numbers *(NBT.1.2)*			
	Solve addition problems by using the strategy draw a diagram *(OA.4.8)*			
Subtraction Strategies within 1,000 6 content	Use place value to find differences within 1,000 *(NBT.1.2)*	Go Math! Chapter 1 Achieve the Core Go Math Guidance Documents	• Task Card: Add It Up Café • Task Card: Candy Bars (Task 2 Addition and Subtraction) • CPALMS: Chess Wish List • https://learnzillion.com/ Lesson: Interpreting a two-step word problem Created by: Steve Lebel • www.k-5mathteachingresources.com OA.8 Two Step Word Problems – Set 1	Reteach & Enrichment Support: Subtraction Strategies within One Thousand The above document provides opportunities for reteach and enrichment with the current aligned learning goal.
	Use the combined place value strategy to find differences *(NBT.1.2)*			
	Use a variety of strategies to find sums; break apart, number line, mental math, friendly numbers, and compatible numbers *(NBT.1.2)*			
	Solve differences problems by using the strategy draw a diagram *(OA.4.8)*			

Round and Estimate within 1,000 7 content + 1 progress monitoring check	Round numbers to the nearest ten *(NBT.1.1)* Round numbers to the nearest hundred *(NBT.1.1)* Use rounding to estimate sums and differences *(NBT.1.1)*	Go Math! Chapter 1 Achieve the Core Go Math Guidance Documents	• Task Card: Animal Crackers • NSA Activity: Reasonable Estimates • Learnzillion.com **Unit: 3** **Lesson: 1** – Understand rounding to the nearest 10 **Lesson: 2** – Understand rounding to the nearest 100 **Lesson: 3** – determining which values will round to a specific number • CPALMS: Rockin' Round the Number Line 1 Rockin' Round the Number Line 2 Rounding for the Decades	Reteach & Enrichment Support: Round and Estimate within One Thousand The above document provides opportunities for reteach and enrichment with the current aligned learning goal.

Instructional Strategies and Resources

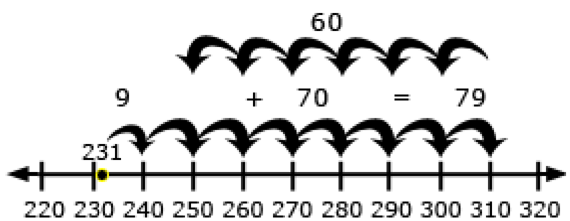
Prerequisites from Grade 2:

- Explain the value of the digit and compare numbers
- Fluently add and subtract within 100 using strategies
- Fluently add and subtract numbers within 20 using mental math strategies

It is important that students be exposed to multiple-step problem-solving and decision making for which strategy is best for solving. Students should also be able to demonstrate the application of strategies for problem-solving (using any combination of words, numbers, diagrams, physical objects or symbols).

Examples:

- Jerry earned 231 points at school last week. This week he earned 79 points. If he uses 60 points to earn free time on a computer, how many points will he have left?



A student may use the number line above to describe his/her thinking, "231 + 9 = 240 so now I need to add 70 more. 240, 250 (10 more), 260 (20 more), 270, 280, 290, 300, 310 (70 more). Now I need to count back 60. 310, 300 (back 10), 290 (back 20), 280, 270, 260, 250 (back 60)."

A student writes the equation, 231 + 79 – 60 = m and uses rounding (230 + 80 – 60) to estimate.
A student writes the equation, 231 + 79 – 60 = m and calculates 79-60 = 19 and then calculates 231 + 19 = m.

- The soccer club is going on a trip to the water park. The cost of attending the trip is $63. Included in that price is $13 for lunch and the cost of 2 wristbands, one for the morning and one for the afternoon. Write an equation representing the cost of the field trip and determine the price of one wristband.

W	*W*	13
63		

The above diagram helps the student write the equation, w + w + 13 = 63. Using the diagram, a student might think, "I know that the two wristbands cost $50 ($63-$13) so one wristband costs $25." To check for reasonableness, a student might use front end estimation and say 60-10 = 50 and 50 ÷ 2 = 25.

Students gain a full understanding of which operation to use in any given situation through contextual problems. Number skills and concepts are developed as students solve problems. Problems should be presented on a regular basis as students work with numbers and computations.

Researchers and mathematics educators advise **against** providing "key words" for students to look for in problem situations because they can be misleading. Students should use various strategies to solve problems. Students should analyze the structure of the problem to make sense of it. They should think through the problem and the meaning of the answer before attempting to solve it. (M.Burns)

Encourage students to represent the problem situation in a drawing or with counters or blocks. Students should determine the reasonableness of the solution to all problems using mental computations and estimation strategies.

Children's Literature:

- *Earth Day- Hooray!* by Stuart J. Murphy
- *Even Steven Odd Todd* by Kathryn Cristaldi
- *So Many Seashells* by Rita Cardoso

Formative Checkpoint: A continuous process used by teachers and students to utilize formal and informal checks to elicit evidence regarding the degree to which a particular student or class of students has mastered the aligned learning goals. Based on the evidence collected, teachers adjust their ongoing instructional activities.

The following are suggestions teachers may consider as they plan the formative checkpoint they will use for this big idea of instruction.

Resources:
- Chapter 1 Mid-Chapter Checkpoint
- Chapter 1 Diagnostic Interview
- Chapter 1 Performance Assessment – "At the Theater"
- Math Journal Entries

MFAS Tasks 3.NBT.1.1:
- Rounding to the Nearest 10
- The Smallest and Largest Possible Numbers
- Rounding to the Nearest Hundred
- Mystery Number Rounding Problem

MFAS Tasks for 3.NBT.1.2:
- Addition Within 1000
- Wanda's Method

MFAS Tasks for 3.OA.4.9:
- Adding Odd Numbers
- Adding Odds and Evens

Sample: Suggested Standards-based Check - Blueprint
- Place Value, Addition, and Subtraction; Scoring Rubric

Big Idea 3
Quarters 1 & 2

Academic Plan
Mathematics – Grade Three (Course #5012050)

Suggested Big Idea Length:
30 – 34 days

Adopted Instructional Materials: Houghton Mifflin Harcourt, Go Math!

Big Idea Description: *Multiplication Strategies within 100*
Students will develop a conceptual understanding of multiplication by relating to addition, using manipulatives to create arrays, and construct models to show how many in all. Students will use properties, apply strategies, and be able to visualize and utilize facts to find products within 100.

Student will explore and utilize algebraic concepts including: function tables, multiplication tables, arrays, diagrams, base-ten blocks, number lines, place value, and unknown factors to solve multiplication equations. Students will create and use an organized list to find all possible combinations.

Throughout the year, it is vital for third grade students to focus on the mastery of basic multiplication facts.

Manipulatives: Below are some of the manipulatives that should be included in the instruction of Big Idea 3. View the attached document, Grade 3 Big Idea 3 Manipulatives, for a comprehensive list of manipulatives and their suggested usage during Big Idea 3.

- Bar Diagram
- Multiplication Table
- Base-Ten Blocks
- Number Line
- Base-Ten Grid Paper
- Pattern Blocks
- Calendar
- Plastic Cups
- Connecting Cubes
- Square Tiles
- Grid Paper
- Two-Color Counters

Teacher Note:
Throughout the year, it is vital for third grade students to focus on mastery of basic multiplication facts within 100, the expectation is for students to continue practicing throughout the year to gain mastery and conceptual understanding. Teachers should focus on multiplication properties and strategies rather than instructing individual factors.

Standards	
Math Content Standards	Cross Content Standards
MAFS.3.NBT.1.3: Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations. **MAFS.3.OA.1.1**: Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*	**LAFS.3.SL.1.1:** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 *topics and texts*, building on others' ideas and expressing their own clearly. **LAFS.3.SL.1.2:** Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively and orally.

MAFS.3.OA.1.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. **MAFS.3.OA.1.4**: Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations* 8 × ? = 48, 5 = [] ÷ 3, 6 × 6 = ?. **MAFS.3.OA.2.5**: Apply properties of operations as strategies to multiply and divide. *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)* **MAFS.3.OA.3.7**: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. **MAFS.3.OA.4.8**: Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **MAFS.3.OA.4.9**: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*	**LAFS.3.SL.1.3:** Ask and answer questions about information from a speaker, offering appropriate elaboration and detail. **LAFS.3.W.1.2:** Write informative/explanatory texts to examine a topic and convey ideas and information clearly. Suggested Standards for Mathematical Practice **MAFS.K12.MP.1.1**: Make sense of problems and preserve in solving them. • How would you describe the problem in your own words? • Talk me through the steps you have used to this point. • How else might you show 7 x 6? **MAFS.K12.MP.2.1**: Reason abstractly and quantitatively. • What properties might we use to find a solution? • Could we have used another operation or property to solve this task? Why or why not. **MAFS.K12.MP.3.1**: Construct viable arguments and critique the reasoning of others. • How can you prove that your solution is correct? **MAFS.K12.MP.5.1**: Use appropriate tools strategically. • What information do you have? • Why is helpful to make a model? • What mathematical tools could you use to visualize and represent the situation? **MAFS.K12.MP.7.1**: Look for and make use of structure. • How can you use 2s fact to find 4 x 6? **MAFS.K12.MP.8.1**: Look for and express regularity in repeated reasoning. • What do you notice about the number of items in each group?

Big Idea(s)
Multiplication Strategies within 100
Essential Outcome Question(s)
How can you use multiplication to find how many in all? What strategies can you use to multiply?

Conceptual Understandings	Essential Question(s)
• Understand what factors mean in order to build understanding of multiplication. • Identify the rows and columns in an array and understand their relationship, for example: **5 x 7 = 5 rows of 7 NOT 7 rows of 5.**	• How can you use skip counting and modeling to find how many in all? • How can you use arrays and equal groups to model multiplication? • How can use properties of multiplication to find products? • How can use a multiplication table to identify and explain patterns in products? • How are addition and multiplication similar and different? • How can you describe a pattern in a table? • How can you use a strategy to find an unknown factor? • How can you model and record multiplication using multiples of 10?

Aligned Learning Goals		District Adopted Materials	Supplemental Resources	Strategies for Differentiation
Conceptual Understanding of Multiplication 10 content + 1 progress monitoring check	Model and skip count objects in equal groups and on a number line *(OA.1.3)*	Go Math! Chapter 3 Achieve the Core Go Math Guidance Documents	• SMART Multiplication Fluency Practice • EngageNY, Module 1, Lesson 2 • www.k-5mathteachingresources.com OA.1 OA.3 Building Arrays Number Story Arrays – Set 1 Number Story Arrays – Set 2 Multiplication Word Problems OA.8 Two Step Word Problems – Set 1 • Learnzillion **Unit: 1** **Lesson: 1** – The Carrot Patch; Use equal groups to understand multiplication **Lesson: 2** – Practice representing multiplication in different ways **Lesson: 6** – Understand how to use drawings and equations to solve multiplication and division problems **Lesson: 7** – use multiplication and division to solve word problems	Reteach & Enrichment Support: Conceptual Understanding of Multiplication The above document provides opportunities for reteach and enrichment with the current aligned learning goal.
	Write an addition sentence and a related multiplication sentence *(OA.1.1)*			
	Use arrays to model products *(OA.1.3)*			
	Draw a model to represent and explain a multiplication sentence *(OA.4.8)*			
	Use the properties of multiplication (Commutative, Identity, and Zero) to explain products *(OA.2.5)*			

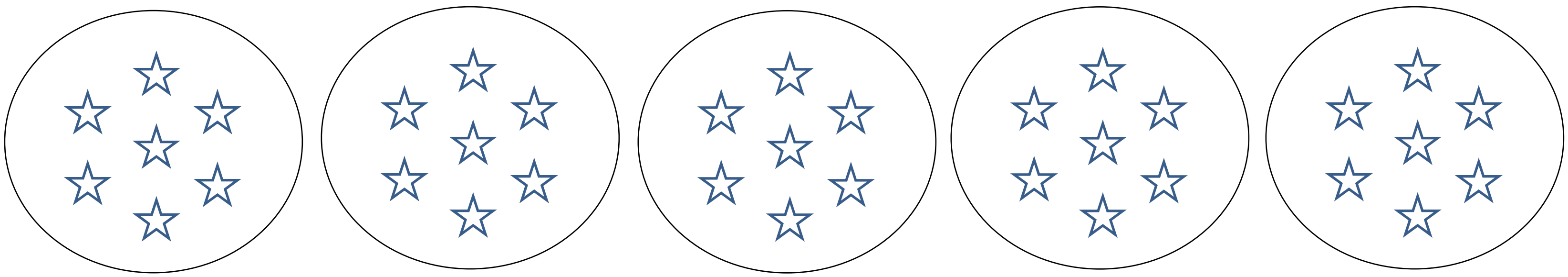
Instruction Strategies and Resources

Prerequisites from Grade 2:

- Organize arrays (up to 5 x 5) to show repeated addition

Students recognize multiplication as a means to determine the total number of objects when there are a specific number of groups with the same number of objects in each group.

Multiplication requires students to think in terms of groups of things rather than individual things. Students learn that the multiplication symbol 'x' means "groups of" and problems such as 5 x 7 refer to 5 groups of 7.



To further develop this understanding, students interpret a problem situation requiring multiplication using pictures, objects, words, numbers, and equations. Then, given a multiplication expression (e.g. 5 x 6) students interpret the expression using a multiplication context.

- Begin to use the terms: *factor and product* as they describe multiplication.

Students need to experience problem-solving involving equal groups (whole unknown or size of group is unknown) and multiplicative comparison (unknown product, group size unknown or number of groups unknown), Table 2.

Encourage students to solve these problems in different ways to show the same idea and be able to explain their thinking verbally and in written expression. Allowing students to present several different strategies provides the opportunity for them to compare strategies.

Sets of counters, number lines to skip count and relate to multiplication and arrays/area models will aid students in solving problems involving multiplication and division.

- Model problems using these tools.
- Students should represent the model used as a drawing or equation to find the solution.
- Show a variety of models of multiplication. (i.e. 3 groups of 5 counters can be written as 3 × 5)
- Provide a variety of contexts and tasks so that students will have more opportunity to develop and use thinking strategies to support and reinforce learning of basic multiplication facts.

Have students create multiplication problem situations in which they interpret the product of whole numbers as the total number of objects in a group and write as an expression.

Formative Checkpoint: A continuous process used by teachers and students to utilize formal and informal assessments to elicit evidence regarding the degree to which a particular student or class of students has mastered the aligned learning goals. Based on the evidence collected, teachers adjust their ongoing instructional activities.

The following are suggestions teachers may consider as they plan the formative checkpoint they will use for this big idea of instruction.

Resources:
- Chapter 3 Mid-Chapter Checkpoint
- Chapter 3 Diagnostic Interview
- Math Journal Entries

MFAS Tasks 3.OA.1.1:
- Writing Multiplication Word Problems
- What Does the 21 Mean?

MFAS Tasks 3.OA.1.1:
- Multiplication on the Number Line
- Interpreting Multiplication

<table>
<tr>
<td rowspan="5">Strategies for Solving Multiplication Problems
10 content + 1 progress monitoring check</td>
<td>Use and explain strategies to multiply: draw a picture, doubles, skip counting, number line, bar model and make a table
(OA.1.3), (OA.3.7)</td>
<td rowspan="5">Go Math!
Chapter 4

Achieve the Core Go Math Guidance Documents</td>
<td rowspan="5">• Task Card: Broken Arrays
• EngageNY, Module 1, Lesson 9
• EngageNY, Module 1, Lesson 10
• k- 5mathteachingresources OA.8 Two Step Word Problems – Set 1
• CPALMS: Chip Chip Array
• CPALMS: Amazing Arrays
• CPALMS: Hungry Zero</td>
<td rowspan="5">Reteach & Enrichment Support: Strategies for Solving Multiplication Problems

The above document provides opportunities for reteach and enrichment with the current aligned learning goal.</td>
</tr>
<tr>
<td>Use the properties of multiplication (Commutative, Associative, Distributive) to identify and/or solve for products
(OA.2.5)</td>
</tr>
<tr>
<td>Fluently multiply within 100 using properties of operations (by end of Grade 3, know from memory all products of two one-digit numbers)
(OA.3.7)</td>
</tr>
<tr>
<td>Solve two-step problems involving multiplication
(OA.4.8)</td>
</tr>
<tr>
<td>Use the distributive property to decompose <u>one</u> of the factors to find the product
(OA.2.5)</td>
</tr>
</table>

Instruction Strategies and Resources

Students should apply their multiplication skills and strategies to solve word problems. They should use a variety of representations for creating and solving one- and two-step word problems.

Examples of multiplication:
There are 24 desks in the classroom. If the teacher puts 6 desks in each row, how many rows are there?

This task can be solved by drawing an array by putting 6 desks in each row.

This task can also be solved by drawing pictures of equal groups. 4 groups of 6 equals 24 objects

******	******	******	******

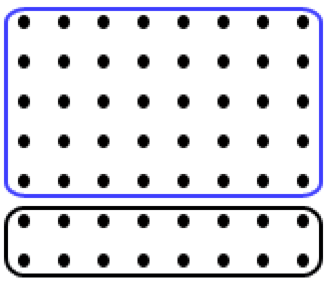
A student could also reason through the problem mentally or verbally, “I know 6 and 6 is 12. 12 and 12 is 24. Therefore, there are 4 groups of 6 giving a total of 24 desks in the classroom.”

A number line could also be used to show equal jumps.

Students in third grade should use a variety of pictures, such as stars, boxes, flowers, etc. to represent unknown numbers (variables). Letters are also introduced to represent unknowns in third grade.

Students are introduced to the Distributive Property of Multiplication over addition as a strategy for using products they know to solve products they don’t know. For example, if students are asked to find the product of 7 x 8, they might decompose 7 into 5 and 2 and then multiply 5 x 8 and 2 x 8 to arrive at 40 + 16 or 56. Students should learn that they can decompose either of the factors. It is important to note that the students may record their thinking in different ways.

$$\begin{array}{r} 5 \times 8 = 40 \\ 2 \times 8 = \underline{16} \\ 56 \end{array}$$



5 x 8 = 40

2 x 8 = 16

7 x 8

Formative Checkpoint: A continuous process used by teachers and students to utilize formal and informal assessments to elicit evidence regarding the degree to which a particular student or class of students has mastered the aligned learning goals. Based on the evidence collected, teachers adjust their ongoing instructional activities.
The following are suggestions teachers may consider as they plan the formative checkpoint they will use for this big idea of instruction.

Resources:	*MFAS Tasks 3.OA.2.5:*	*MFAS Tasks 3.OA.3.7:*	*MFAS Task 3.OA.4.8:*	*MFAS Task 3.OA.4.9:*
• Chapter 4 Mid-Chapter Checkpoint • Chapter 4 Diagnostic Interview • Chapter 4 Performance Assessment – "Talent Show" • Math Journal Entries	• Using the Associative Property of Multiplication • Meeting the Reading Goal	• Using Flexible Strategies • MFAS: Fluency with Basic Multiplication Facts	• Party Beverages	• Patterns Within the Multiplication Table

Use Algebraic Thinking to Multiply 9 content + 1 progress monitoring check	Identify and describe patterns in a function table *(OA.4.9)*	Go Math! Chapter 5 Achieve the Core Go Math Guidance Documents	• Task Card: Leg Riddles • Task Card: Tile Patterns • k- 5mathteachingresources OA.9 Patterns in the Multiplication Table • CPALMS: Fishing for Multiples of 10 Tens, Tens, and More Tens Discovering the Mystery Factor Through Arrays	Reteach & Enrichment Support: Use Algebraic Thinking to Multiply The above document provides opportunities for reteach and enrichment with the current aligned learning goal.
	Identify patterns in an addition or multiplication table *(OA.4.9)*			
	Use an array or table to find an unknown factor *(OA.1.4)*			
	Use diagrams, base-ten blocks, a number line or place value to solve equations involving multiples of ten *(NBT.1.3)*			

Instructional Strategies and Resources
The easiest problem structure includes Unknown Product (3 x 6 = ? or 18 ÷ 3 = 6). The more difficult problem structures include Group Size Unknown (3 x ? = 18 or 18 ÷ 3 = 6) or Number of Groups Unknown (? x 6 = 18, 18 ÷ 6 = 3). The focus of 3.OA.1.4 goes beyond the traditional notion of *fact families*, by having students explore the **inverse relationship** of multiplication and division. Students apply their understanding of the meaning of the equal sign as "the same as" to interpret an equation with an unknown. When given 4 x ? = 40, they might think: • 4 groups of some number is the same as 40. • 4 times some number is the same as 40. • I know that 4 groups of 10 is 40 so the unknown number is 10. • The missing factor is 10 because 4 times 10 equals 40. Equations in the form of a x b = c and c = a x b should be used interchangeably, with the unknown in different positions.
Formative Checkpoint: A continuous process used by teachers and students to utilize formal and informal assessments to elicit evidence regarding the degree to which a particular student or class of students has mastered the aligned learning goals. Based on the evidence collected, teachers adjust their ongoing instructional activities.
The following are suggestions teachers may consider as they plan the formative checkpoint they will use for this big idea of instruction.

Resources:	*MFAS Task 3.OA.1.4:*	*MFAS Task 3.OA.4.9:*	*MFAS Task 3.NBT1.3:*
• Chapter 5 Mid-Chapter Checkpoint • Chapter 5 Diagnostic Interview • Math Journal Entries	• MFAS: Missing Numbers in Multiplication Equations	• MFAS: Multiplication of Even Numbers	• Packages of 50 • Multiplying by Multiples of Ten • Just Add a Zero • How are These Two Problems Related?

Sample: Suggested Standards-based Checks - Blueprint
• Understanding Multiplication; Scoring Rubric • Strategies for Multiplication; Scoring Rubric • Use Algebraic Thinking to Multiply; Scoring Rubric

Big Idea 4
Quarter 2

Academic Plan
Mathematics – Grade Three (Course #5012050)

Suggested Big Idea Length:
17 – 21 days

Adopted Instructional Materials: Houghton Mifflin Harcourt, Go Math!

Big Idea Description: *Apply Division Strategies within 100*
Students will develop a conceptual understanding of division by relating to subtraction, using manipulatives to decompose arrays, and construct models to show how many in each group or number of equal groups. Students will use properties, apply strategies, and be able to visualize and utilize facts to find quotients within 100. Students will understand the relationship between multiplication and division (inverse operations).

Manipulatives: Below are some of the manipulatives that should be included in the instruction of Big Idea 4. View the attached document, Grade 3 Big Idea 4 Manipulatives, for a comprehensive list of manipulatives and their suggested usage during Big Idea 4.

- Bar Diagram
- Number Line
- Connecting Cubes
- Square Tiles
- Grid Paper
- Two-Color Counters
- Multiplication Table

Teacher Note:
Throughout the year, it is vital for third grade students to focus on mastery of basic division facts within 100, the expectation is for students to continue practicing throughout the year to gain mastery and conceptual understanding.

Standards	
Math Content Standards	Cross Content Standards
MAFS.3.OA.1.2: Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.* **MAFS.3.OA.1.3:** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. **MAFS.3.OA.1.4:** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations* 8 × ? = 48, 5 = [] ÷ 3, 6 × 6 = ?.	**LAFS.3.SL.1.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 *topics and texts*, building on others' ideas and expressing their own clearly. **LAFS.3.SL.1.2** Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally. **LAFS.3.SL.1.3** Ask and answer questions about information from a speaker, offering appropriate elaboration and detail. **LAFS.3.W.1.2** Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

<table>
<tr>
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MAFS.3.OA.2.5:
Apply properties of operations as strategies to multiply and divide. *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*

MAFS.3.OA.2.6:
Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*

MAFS.3.OA.3.7:
Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

MAFS.3.OA.4.8:
Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

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Suggested Standards for Mathematical Practice

MAFS.K12.MP.2.1:
Reason abstractly and quantitatively.

- What division situation could be represented by this equation?
- What properties of division did you use to find the answer?
- How do you know your answer is reasonable?

MAFS.K12.MP.3.1:
Construct viable arguments and critique the reasoning of others.

- Why is it sometimes better to use division than subtraction?

MAFS.K12.MP.7.1:
Look for and make use of structure.

- How can you rewrite the division equation using the words factor, factor, and product?

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</tr>
<tr><th colspan="2">Big Idea(s)</th></tr>
<tr><td colspan="2">Apply Division Strategies within 100</td></tr>
<tr><th colspan="2">Essential Outcome Question(s)</th></tr>
<tr><td colspan="2">

- How can you model a division problem to find how many in each group or how many equal groups?
- What strategies can you use to divide?

</td></tr>
<tr><th>Conceptual Understanding</th><th>Essential Question(s)</th></tr>
<tr>
<td>

- Use strategies for multiplication to build recall of basic division facts.
- Understand that division can be supported through real world problems where the number in each group is the unknown.
- Understand that division can be supported through real world problems where the number of groups is unknown.
- Understand the connection between multiplication and division as modeled with an array or equal groups.

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<td>

- How can you use a model to explain the process of division?
- How can you use strategies to solve division problems?
- How can you use the Identity and Zero properties to solve division problems?
- How are subtraction and division similar and different?
- How can you use a strategy to find quotients, dividends, or divisors?

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</table>

Aligned Learning Goals		District Adopted Materials	Supplemental Resources	Strategies for Differentiation
Conceptual Understanding of Division 9 content + 1 progress monitoring check	Solve word problems using strategies for division *(OA.1.3)*	Go Math! Chapter 6 Achieve the Core Go Math Guidance Documents	• CPALMS: Pet Store Partitive Division • Math Solutions: Everybody Wins! • CPALMS: Cookies for ALL • CPALMS: Three is NOT a Crowd! • CPALMS: Division by matching equations to the real world examples • CPALMS: Break Apart and Put Together • Learnzillion **Unit:7** **Lesson 3**- Choose efficient strategies to solve division problems	Reteach & Enrichment Support: Understanding Division The above document provides opportunities for reteach and enrichment with the current aligned learning goal.
	Interpret whole number quotients using division strategies including equal groups, arrays, number lines, and bar models *(OA.1.2)*			
	Explain and use the Identity and Zero Properties to divide *(OA.2.5, OA.3.7)*			
	Relate multiplication and division as inverse operations *(OA.2.6, OA.3.7)*			

Instructional Strategies and Resources

Prerequisites from Grade 2:

- Organize arrays (up to 5 x 5) to show repeated addition

In Big Idea 4, students will begin to explore the operation of division. Students that have created a solid foundation of multiplication benefit as they begin to understand the relationship between the two operations. As students begin to see this relationship, they are able to identify related facts to aid them in reaching a solution; however; relying on rote memorization of facts will not provide enough of an understanding for students to be able to create models and representations of division situations. Each of these skills is necessary for students to be able to interpret division in a variety of contexts.

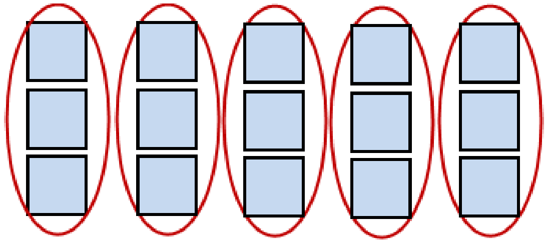
Division is represented by two distinct problem contexts where the total is known and either the number of groups or the number of objects in each group is unknown.

Quotitive Method (measurement/repeated subtraction): In problems where the total **and** the number of objects in each group are known, students solve for the unkown number of groups.

How many groups of 3 are in 15?

15 ÷ 3 = ?

The number of groups is unknown.



There are five groups of three in 15.

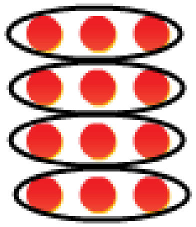
When division is modeled with an array, the total number in the array represent the dividend, and the number of rows and collumns represent the number of groups and the number in each group.

Partitive Method (sharing):

Using 12 counters, place the counters in 4 rows. How many objects will be in each of the rows.

12 ÷ 4 = ?

The number of objects in each row is unknown.



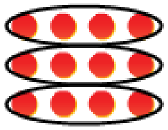
There are 3 objects in each of the 4 rows.

Quotitive Method (measurement/repeated subtraction):

Using 12 counters, how many rows of 4 can you make?

12 ÷ 4 = ?

The number of rows is unknown.



There are 3 rows of 4 in 12.

Children's Literature:

- *The Doorbell Rang* by Pat Hutchins
- *The Great Divide: A Mathematical Marathon* by Dayle Dodds
- *Divide and Ride* by Stuart Murphy

<table>
<tr><td colspan="5">Formative Checkpoint: A continuous process used by teachers and students to utilize formal and informal assessments to elicit evidence regarding the degree to which a particular student or class of students has mastered the aligned learning goals. Based on the evidence collected, teachers adjust their ongoing instructional activities.</td></tr>
<tr><td colspan="5">The following are suggestions teachers may consider as they plan the formative checkpoint they will use for this big idea of instruction.
Resources:
• Chapter 6 Mid-chapter Checkpoint
• Chapter 6 Diagnostic Interview
• Journal Entries
MFAS Tasks 3.OA.1.2:
• Writing a Problem with a Quotient
• What Does the Six Mean?
• Using a Number Line to Solve a Division Problem
• Interpreting Division
MFAS Tasks 3.OA.1.3:
• Finding an Unknown Product
• Finding the Group Size
• Finding the Number of Groups
MFAS Task 3.OA.2.5:
• Does it Work for Division?
MFAS Tasks 3.OA.2.6:
• Using Multiplication to Solve Division Problems
• Changing Division Equations into Multiplication Equations
• Multiplication as the Inverse of Division
• Alien Math</td></tr>
<tr><td rowspan="4">Strategies for Solving Division Problems
8 content + 1 progress</td><td>Solve word problems using strategies for division
(OA.1.3)</td><td rowspan="4">Go Math!
Chapter 7

Achieve the Core Go Math Guidance Documents</td><td rowspan="4">• CPALMS – MEA: Rift Raft Floating
• LearnZillion
Using Division to solve word problems
• LearnZillion
Solve Division Problems using relationship between multiplication and division</td><td rowspan="4">Reteach & Enrichment Support: Strategies for Division

The above document provides opportunities for reteach and enrichment with the current aligned learning goal.</td></tr>
<tr><td>Use relationships between multiplication and division to divide
(OA.3.7)</td></tr>
<tr><td>Solve two-step problems involving four operations
(OA.4.8)</td></tr>
<tr><td>Determine the unknown in a division equation (related facts)
(OA.1.4)</td></tr>
<tr><td colspan="5">Formative Checkpoint: A continuous process used by teachers and students to utilize formal and informal assessments to elicit evidence regarding the degree to which a particular student or class of students has mastered the aligned learning goals. Based on the evidence collected, teachers adjust their ongoing instructional activities.</td></tr>
<tr><td colspan="5">The following are suggestions teachers may consider as they plan the formative checkpoint they will use for this big idea of instruction.
Resources:
• Chapter 7 Mid-chapter Checkpoint
• Chapter 7 Diagnostic Interview
• Performance Assessment “Lemonade Stand” pg. AG22
• Journal Entries
MFAS Tasks 3.OA.1.4:
• Missing Numbers in Division Equations
• Find the Unknown Number
• Multiplication and Division Equations
MFAS Task 3.OA.3.7:
• Fluency with Division
MFAS Tasks 3.OA.4.8:
• Zoo Field Trip
• Bake Sale</td></tr>
<tr><td colspan="5">Sample: Suggested Standards-based Checks - Blueprint
• Understanding Division; Scoring Rubric
• Strategies for Division; Scoring Rubric</td></tr>
</table>

Big Idea 5
Quarters 2 & 3

Academic Plan
Mathematics – Grade Three (Course #5012050)

Suggested Big Idea Length:
25 – 29 days

Adopted Instructional Materials: Houghton Mifflin Harcourt, Go Math!

Big Idea Description: *Exploring Fractions*
Students will understand and explain how fractions name equal parts of a whole or represent fractional parts of a group. Students will use strategies and number sense to compare and order fractions. Students will be able to explain and compute equivalent fractions.

Manipulatives: Below are some of the manipulatives that should be included in the instruction of Big Idea 5. View the attached document, Grade 3 Big Idea 5 Manipulatives, for a comprehensive list of manipulatives and their suggested usage during Big Idea 5.

- Fraction Circles
- Paper Folding
- Fraction Tiles
- Paper Strips
- Grid Paper
- Pattern Blocks
- Number Line
- Two-Color Counters

Teacher Note:
Additional days have been included during Big Idea 5 to provide additional instruction time for MAFS.3.NF.1.1 to support partitioning shapes into equal parts, MAFS.3.G.1.2. (Lesson 12.9 of Go Math!)

Standards

Math Content Standards	Cross Content Standards
MAFS.3.NF.1.1: Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b. **MAFS.3.NF.1.2**: Understand a fraction as a number on the number line; represent fractions on a number line diagram. a. Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line. b. Represent a fraction *a/b* on a number line diagram by marking off *a* lengths *1/b* from 0. Recognize that the resulting interval has size *a/b* and that its endpoint locates the number *a/b* on the number line.	**LAFS.3.SL.1.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 *topics and texts*, building on others' ideas and expressing their own clearly. **LAFS.3.SL.1.2** Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally. **LAFS.3.SL.1.3** Ask and answer questions about information from a speaker, offering appropriate elaboration and detail. **LAFS.3.W.1.2** Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

MAFS.3.NF.1.3:

Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model.
c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.*
d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Suggested Standards for Mathematical Practice

MAFS.K12.MP.2.1:

Reason abstractly and quantitatively.

- How do you know your answer is reasonable?
- How could 6 friends share a pizza equally?
- Is the fraction less than 1, equal to 1, or greater than 1?

MAFS.K12.MP.4.1:

Model with mathematics.

- How can a diagram help you solve your problem?
- How can you use a number line to represent and locate fractions?
- How do you show an entire distance on a number line?

MAFS.K12.MP.5.1:

Use appropriate tools strategically.

- How can counters help to show part of a group?
- Why might you choose fraction strips or fraction circles to mode a problem?

Big Idea(s)

Understanding Fractions

Essential Outcome Question(s)

- How can you use fractions to describe how much or how many?
- How can you compare fractions?

Conceptual Understandings	Essential Question(s)
• Understand the difference between equal and unequal when referencing the same whole. • Identify a unit fraction as a fraction with a numerator of 1, partitioned into *n* equal parts. • Understand the denominator of a fraction names the number of parts in the whole and the numerator of a fraction names the names how many of those parts are being considered. • Recognize the relationship between the numerator and the denominator. • Make connections, determine size, order, and equivalence, and judge whether answer are or are not reasonable.	• How can you explain and name equal parts of a whole? • How can you use vocabulary to identify and explain fractional parts? • How can you locate fractions on a number line? • How can you explain fractions greater than one? • How can you find and explain fractional parts of a group? • How can you compare and order fractions? • How can you find equivalent fractions?

Aligned Learning Goals			District Adopted Materials	Supplemental Resources	Strategies for Differentiation
Conceptual Understanding of Fractions	15 content + 1 progress monitoring check	Make and name equal shares of a whole *(NF.1.1)*	Go Math! Chapter 8 Achieve the Core Go Math Guidance Documents	• Task Card: Sharing One Pizza • CPALMS: It's All About the Whole • CPALMS: Fraction Action • CPALMS: The Human Number Line • CPALMS: The Fraction String • CPALMS: Fraction Folding Part 1 • CPALMS: Fun with Pattern Block Fractions: Exploring the Value of the Whole • Illustrative Mathematics: Locating fractions greater than one on a number line	Reteach & Enrichment Support: Understanding Fractions The above document provides opportunities for reteach and enrichment with the current aligned learning goal.
		Understand a fraction as a number on the number line *(NF.1.2)*			
		Represent and locate fractions on a number line *(NF.1.2)*			
		Recognize when fractions are equivalent to whole numbers *(NF.1.3)*			
		Recognize and explain fractions that are greater than 1 using fractions greater than one *(NF.1.3)*			
		Partition shapes into equal parts and express each part as a unit fraction of the whole *(NF.1.1)*			

Instructional Strategies and Resources

Prerequisites from Grade 2:

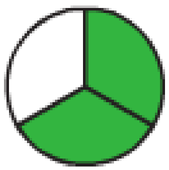
- Partition circles and rectangles into halves, thirds, fourths
- Recognize that equal shares of identical wholes need not have the same shape

In Big Idea 5, students will begin to explore fractions. Students will build a general understanding of the format for writing, reading, and identifying fractions as well as the vocabulary associated with the parts and different types of fractions. Once students have reached this level of understanding, they will begin to compare fractions using a variety of strategies.

When presenting fraction situations to students, using context that they are familiar with and can easily relate to makes modeling easier to accomplish. As students are exposed to these different contexts it is imperative to use an accurate model, different fraction models should be used for different contexts.

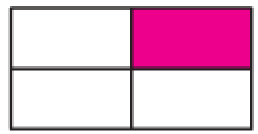
Area Models:

- Area models represent fractions by showing a region partitioned into equal parts, some of which are shaded to help students identify which part of the fraction is being considered.
- Area models are typically shown using either a rectangle or circle depending on the context of the question; however, any shape may be used as long as it has been divided into equal sized parts.



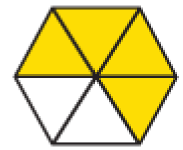
The shaded portion represents $\frac{2}{3}$ of the whole.

Identify which fraction of the figure has been shaded.



The unshaded portion represents $\frac{3}{4}$ of the whole.

Identify which fraction of the figure has **not** been shaded.

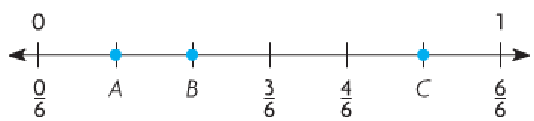


The shaded portion represents $\frac{4}{6}$ of the whole.

Identify which fraction of the figure has been shaded.

Linear Models:

- Number lines are typically used when representing fractions in a linear model. Scenarios that fit this model include length or distance.



Point B can be named as the fraction $\frac{2}{6}$.

Which fraction names point B on the line?

Students enter the classroom with variety of life experiences that relate to fractions; it is important to build upon this knowledge and fix misconceptions that may exist. For example: a child that has only eaten a portion of a sandwich may hear from a parent that they ate only half, when the actual fraction may have been better explained as having eaten only a quarter of the sandwich. Students may need clarification that not all portions of a whole can be generalized as half.

When students use models to represent fractions, they are building a bank of mental images to support their understanding of fractions. They must also make the connections that although fractions represent a portion of a whole, this fraction is still a quantity.

- The denominator of a fraction names the number of parts that make up the whole, and the numerator names how many of those parts are being considered in a particular situation.
- The quantity represented by a fraction is based on the relationship between the numerator and the denominator. The closer the numerator and denominator are in value, the closer he quantity is to one. The further apart these values spans from one another, the closer the value is to zero.

<table>
<tr><td colspan="5">Formative Checkpoint: A continuous process used by teachers and students to utilize formal and informal assessments to elicit evidence regarding the degree to which a particular student or class of students has mastered the aligned learning goals. Based on the evidence collected, teachers adjust their ongoing instructional activities.</td></tr>
<tr><td colspan="5">The following are suggestions teachers may consider as they plan the formative checkpoint they will use for this big idea of instruction.
Resources:
• Chapter 8 Mid-chapter Checkpoint
• Chapter 8 Diagnostic Interview
• Journal Entries
MFAS Tasks 3.NF.1.1:
• Painting A Wall
• Three Quarters Of The Race
• What Does One Fifth Mean?
• Which Shows One Third?
MFAS Tasks 3.NF.1.2:
• Five-Eighths on the Number Line
• Four-Sixths on the Number Line
• One-Third on the Number Line
• Three-Fourths on the Number Line
MFAS Tasks 3.NF.1.3:
• How Many Fourths Are in Two Wholes?</td></tr>
<tr><td rowspan="3">Comparing Factions
10 content + 1 content</td><td>Use models and strategies to compare fractions with common numerators
(NF.1.3)</td><td rowspan="3">Go Math!
Chapter 9

Achieve the Core Go Math Guidance Documents</td><td rowspan="3">• Task Card: Fraction Pizza
• Task Card: Fraction War
• Task Card: Spin and Compare
• Hands On: The Great Pizza Swap Pizza Pieces
• Illuminations Lesson: Investigating Fractions with Pattern Blocks
• UEN: Match My Fraction
• CPALMS: Who has more?</td><td rowspan="3">Reteach & Enrichment Support: Comparing Fractions

The above document provides opportunities for reteach and enrichment with the current aligned learning goal.</td></tr>
<tr><td>Use models and strategies to compare fractions with common denominators
(NF.1.3)</td></tr>
<tr><td>Use models to generate and understand equivalent fractions
(NF.1.3)</td></tr>
</table>

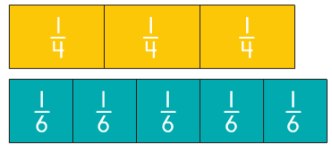
Instructional Strategies and Resources

As students begin to compare fractions in third grade, the main focus must be on helping students to develop an understanding of how to create visual models and looking at the numerator and denominator to determine the approximate size of each unit fraction. Students should not be learning the formal algorithms for finding common denominators or learning to cross multiply. These algorithmic explanations are not meant to be unveiled until fourth grade after a strong foundation has been developed.

Manipulatives should be used to compare fractions when the difference can be observed visually.

Example:

Compare the fractions $\frac{3}{4}$ and $\frac{5}{6}$.



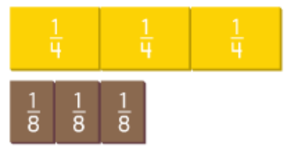
"I created a model of each fraction using fraction strips. Based on my model, $\frac{5}{6} > \frac{3}{4}$.

When visual inspection is not convenient, students need to have other strategies for comparing and ordering.

- In situations when fractions have a common numerator, they can be compared by considering the size of their pieces in the whole.

Example:

Compare the fractions $\frac{3}{4}$ and $\frac{3}{8}$.

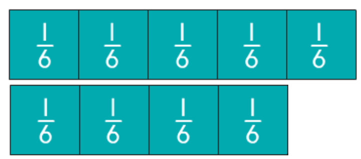


Eighths are smaller than fourths, therefore, $\frac{3}{8}$ *is smaller than* $\frac{3}{4}$.

- In situations when fractions have a common denominator, they can be compared by determining that the pieces are all the same size. Therefore, the fraction with the greater numerator is the greater fraction.

Example:

Compare the fractions $\frac{5}{6}$ and $\frac{4}{6}$.



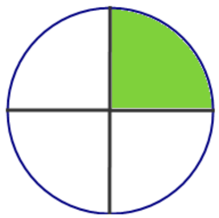
There are more sixths in five sixths than four sixths, so $\frac{5}{6}$ *is greater than* $\frac{4}{6}$.

"Children need lots of informal experiences with fractions before proceeding to formal fraction operations because they need to build up some fraction sense. This means that students should develop an intuition that helps them make appropriate connections, determine size, order, and equivalence, and judge whether answers are or are not reasonable." (Lamon, 1999, p. 148)

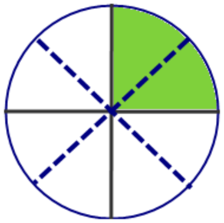
Before finding formal procedures for finding equivalent fractions, students must have experiences to build their conceptual understanding.

- When a whole has been divided into equal parts, one strategy to find equivalent fractions is to then section each part in half.

Example: Looking at the shaded portion of the model representing $\frac{1}{4}$, create a model to show an equivalent fraction.



"I divided each section in half to create 8 equal sections. The shaded portion now represents $\frac{2}{8}$.



Children's Literature:

- *Picture Pie* by Ed Emberley
- *Full House: An Invitation to Fractions* by Dayle Ann Dodds

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The following are suggestions teachers may consider as they plan the formative checkpoint they will use for this big idea of instruction.

Resources:

- Chapter 9 Mid-chapter Checkpoint
- Chapter 9 Diagnostic Interview
- Journal Entries

MFAS Tasks 3.NF.1.3:

- Four Fourths
- Generating Equivalent Fractions
- The Cake Problem
- Comparing Fractions
- Equivalent Fractions

Sample: Suggested Standards-based Checks - Blueprint

- Understanding Fractions; Scoring Rubric
- Comparing Fractions; Scoring Rubric

Big Idea 6
Quarter 3

Academic Plan
Mathematics – Grade Three (Course #5012050)

Suggested Big Idea Length:
20 – 24 days

Adopted Instructional Materials: Houghton Mifflin Harcourt, Go Math!

Big Idea Description: *Time and Measurement*
Students will estimate and measure figures, including length, liquid volume, and mass. Students will utilize analog and digital clocks to tell time to the quarter hour and minute, as well as name the same time different ways. Students will investigate figures to determine perimeter and find lengths of unknown sides when give perimeter of a figure. Students will use models to estimate and measure area of plane shapes. Students will manipulate models of figures to compare shapes with same area and different perimeter, as well as shapes with the same perimeter and different area.

Manipulatives: Below are some of the manipulatives that should be included in the instruction of Big Idea 6. View the attached document, Grade 3 Big Idea 6 Manipulatives, for a comprehensive list of manipulatives and their suggested usage during Big Idea 6.

- Analog Clock Faces
- Inch Ruler (½ & ¼)
- Dot Paper
- Number Line
- Fraction Circles
- Pan Balance
- Geo-Board
- Square Tiles
- Grid Paper
- Standard Containers

Teacher Note:
During this Big Idea, it is important for students to have an understanding of the importance of using labels specific to the unit of measurement.
Example: time – reporting in A.M. and P.M, area – reported in square units of measurement.

Standards	
Math Content Standards	Cross Content Standards
MAFS.3.MD.1.1: Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram. **MAFS.3.MD.1.2:** Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units. **MAFS.3.MD.2.4:** Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters. **MAFS.3.MD.3.5:** Recognize area as an attribute of plane figures and understand concepts of area measurement.	**LAFS.3.SL.1.1:** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 *topics and texts*, building on others' ideas and expressing their own clearly. **LAFS.3.SL.1.2:** Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally. **LAFS.3.SL.1.3:** Ask and answer questions about information from a speaker, offering appropriate elaboration and detail. **LAFS.3.W.1.2:** Write informative/explanatory texts to examine a topic and convey ideas and information clearly. **SC.3.P.8.2:** Measure and compare the mass and volume of solids and liquids.

a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units. **MAFS.3.MD.3.6:** Measure areas by counting unit squares (square cm., square m., square in., square ft., and improvised units). **MAFS.3.MD.3.7:** Relate area to the operations of multiplication and addition. a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a × b and a × c. Use area models to represent the distributive property in mathematical reasoning. d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. **MAFS.3.MD.4.8:** Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	Suggested Standards for Mathematical Practice **MAFS.K12.MP.1.1:** Make sense of problems and persevere in solving them. • What is the problem asking? • What strategy did you use to solve the problem? **MAFS.K12.MP.2.1:** Reason abstractly and quantitatively. • How do you know your answer is reasonable? • Would a textbook be 12 feet or 12 inches in length? **MAFS.K12.MP.4.1:** Model with mathematics. • How can you use a number line to find elapsed time? • How can you use a clock face to help you solve the problem? **MAFS.K12.MP.5.1:** Use appropriate tools strategically. • What information do you have? • What mathematical tools could you use to visualize and represent the situation? • Why is it helpful to make a model? **MAFS.K12.MP.7.1:** Look for and make use of structure. • How could you have found the time more quickly than counting by fives? **MAFS.K12.MP.8.1:** Look for and express regularity in repeated reasoning.

Big Idea(s)

Time and Measurement

Essential Outcome Question(s)

- How can you tell time?
- How can you use measurement to describe the size of an object?
- How can you solve problems involving perimeter and area?

Conceptual Understandings	Essential Question(s)
• Understand that a clock has 12 sections and each section corresponds to 5 minutes. • Understand how to measure time intervals to the minute (elapsed time). • Identify both ½ and ¼ marks as it relates to length using a ruler and tick marks on a line plot. • Understand how to transfer measurement data to a line plot. • Know standard units of measurement for liquid volumes and masses (grams (g), kilograms (kg), and liters (l)). • Identify area by counting unit squares. • Understand how to show a concrete example of area (tiling).	• How can you tell time to the minute? • How can you name a time in different ways? • How can you measure elapsed time in minutes? • How can you find the starting time or an ending time when you know the elapsed time? • How can you generate measurement data and show the data on a line plot? • How can you estimate and measure liquid volume and mass? • How can you find and measure perimeter? • How can you determine the length of unknown sides in a given perimeter? • How is finding the area of a shape *different* from finding the perimeter of a shape? • How can you find the area of a plane shape, including using multiplication for rectangles? • How can you use perimeter and area to compare rectangles?

Aligned Learning Goals		District Adopted Materials	Supplemental Resources	Strategies for Differentiation
Time 5 content	Tell and write time to the nearest minute *(MD.1.1)*	Go Math! Chapter 10 Achieve the Core Go Math Guidance Documents	• Task Card: Spin, Spin, Spin	Reteach & Enrichment Support: Time The above document provides opportunities for reteach and enrichment with the current aligned learning goal.
	Name the same time different ways *(MD.1.1)*			
	Use a number line to measure time intervals in minutes. *(MD.1.1)*			
	Find elapsed time between events *(MD.1.1)*			
	Solve word problems involving intervals of time *(MD.1.1)*			
	Find start or end time when elapsed time is given *(MD.1.1)*			

Formative Checkpoint: A continuous process used by teachers and students to utilize formal and informal assessments to elicit evidence regarding the degree to which a particular student or class of students has mastered the aligned learning goals. Based on the evidence collected, teachers adjust their ongoing instructional activities.

The following are suggestions teachers may consider as they plan the formative checkpoint they will use for this big idea of instruction.

Resources:

- Chapter 10 Mid-Chapter Checkpoint
- Chapter 10 Diagnostic Interview Assessment
- "Train Schedule" Performance Assessment
- Journal Math Entries

MFAS Tasks 3.MD.1.1:

- Telling Time
- Time Spent
- Find the Time
- What Time Is It Now?

Length 4 content	Measure length to nearest ½ inch *(MD.1.2)* Measure length to nearest ¼ inch *(MD.1.2)* Make line plots from measurement data *(MD.2.4)*	Go Math! Chapter 10 Achieve the Core Go Math Guidance Documents	• K-5 Math Resource: Measuring Strips Line Plot • CPALMS: Measuring Matters! • CPALMS: Magnified Inches	Reteach & Enrichment Support: Length The above document provides opportunities for reteach and enrichment with the current aligned learning goal.
Liquid Volume and Mass 3 content + 1 progress monitoring check	Estimate and measure liquid volume in liters *(MD.1.2)* Estimate and measure mass in grams and kilograms *(MD.1.2)* Solve problems involving liquid volumes or masses *(MD.1.2)*	Go Math! Chapter 10 Achieve the Core Go Math Guidance Documents	• K-5 Math Resource: Weigh it Twice • K-5 Math Resource: Capacity Lineup • CPALMS: Is That Estimate Correct?	Reteach & Enrichment Support: Liquid Volume and Mass The above document provides opportunities for reteach and enrichment with the current aligned learning goal.

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The following are suggestions teachers may consider as they plan the formative checkpoint they will use for this big idea of instruction.

Resources:

- Chapter 10 Diagnostic Interview Assessment
- "Buses" Performance Assessment
- "Bicycle Path" Performance Assessment

MFAS Tasks 3.MD.1.2:

- Addition and Subtraction with Mass and Volume
- Estimating and Measuring Mass
- Estimating and Measuring Volume
- Multiplication and Division with Mass and Volume

MFAS Tasks 3.MD.2.4:

- The Teacher's Shoe-Part One
- The Teacher's Shoe-Part Two
- Measuring our Pencils-Part One
- Measuring our Pencils-Part Two

Area and Perimeter 8 content + 1 progress monitoring check	Understand area is a square unit *(MD.3.5)* Understand, estimate and measure the area of polygons by counting units squares *(MD.3.6)* Estimate and measure the concept of perimeter of a polygon *(MD.3.6)* Find the length of an unknown side given a known perimeter *(MD.4.8)* Measure area of plane shapes by counting unit squares or multiplying sides' lengths of rectangles *(MD.3.7)* Solve area problems by using strategies: relate area to addition and multiplication, find a pattern, apply the Distributive Property, and by using area models *(MD.3.7)* Find the area of combined rectangles *(MD.3.7)* Compare areas of rectangles that have the same perimeter *(MD.4.8)* Compare perimeters of rectangles that have the same area *(MD.4.8)*	Go Math! Chapter 11 Achieve the Core Go Math Guidance Documents	• Task Card: Perimeter Playground • CPALMS: Finding Perimeter • CPALMS: Perimeter- It's a Linear Measurement • CPALMS: The Square Counting Shortcut • CPALMS: Count Those Square Units Area Designers • CPALMS: Area Isn't Just for Squares • CPALMS: Area: We Need to Know Multiply and Conquer	Reteach & Enrichment Support: Area and Perimeter The above document provides opportunities for reteach and enrichment with the current aligned learning goal.

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The following are suggestions teachers may consider as they plan the formative checkpoint they will use for this big idea of instruction.

Resources:
- Chapter 11 Mid-Chapter Checkpoint
- Chapter 11 Diagnostic Interview Assessment
- "Sunnyside State Park" Performance Assessment

MFAS Tasks 3.MD.3.5:
- Calculating Area
- Overlapping Tiles
- Unit Squares
- Using Tiles of Different Sizes

MFAS Tasks 3.MD.3.6:
- Dawn's Vegetable Garden
- Fenced Dog Run
- Area of a Right Trapezoid
- How Many Square Units?

MFAS Tasks 3.MD.3.7:
- Area of a Butterfly Garden
- Decompose Shapes to Find Area
- Cover Me
- Using Arrays to Model the Distributive Property

MFAS Tasks 3.MD.4.8:
- Perimeters of Polygons with All Sides Known
- What is the Missing Length?
- Finding the Perimeter of a Polygon with Missing Sides
- Find All The Possible Rectangles
- Rectangles with the Same Perimeter

Instructional Strategies and Resources

Prerequisites from Grade 2:

- Tell and write time to the hour, ½ hour and five minutes using AM & PM
- Estimate and measure length in feet, inches, centimeters and meters
- Select appropriate tool to measure
- Use Line Plot to display data

In Big Idea 6, students will investigate units of measure for time, length, liquid volume and mass as well as begin to apply the concepts of length to calculating perimeter and area. As students begin to explore these concepts of measurement, it is essential to allow for hands-on experience with each unit of measure that they will encounter in their standards. Students that have a firm grasp on these concepts understand the following principles of measurement (Leher, Jaslow, & Curtis, 2003). As students are given the opportunity to practice using different units of measure, each of these principles should be taken into consideration and utilized to reach all learners.

Iteration: when students measure an object, they are essentially looking at the whole length as being divided into units and then *iterating*, or repeating this unit. Ex. Before a student uses a measuring tape to discover that a shelf measures three feet in length, they should be given the opportunity to use three, one-foot rulers to measure the same shelf. This repetition of the same measurement, helps the students to understand what “three feet” looks like and means.	*Tiling:* Units fill a space. The numerals on a ruler are showing the continuous measure up to that point, not just at the point itself. Ex. A student that places an object in the center of a ruler (without lining up at zero) might say that it is 9 inches long, when it actually only measures 3 inches. Students must realize that the measure is continuous, but the beginning point of the measure is important to note.
Precision: choosing appropriate units based on the size of the object to be measured increases the accuracy of the measurement. Ex. Measuring the length of the classroom in yards may be faster, but using feet, or even inches allows for a more accurate measurement.	*Zero Point*: any point may be considered the origin on a scale. Ex. A students measures ½ Cup of liquid. Another ¼ cup may be measured in the same measuring cup by filling the container to the ¾ mark.
Partition: Units can be partitioned/divide into smaller portions. Ex. When measuring an object with great specificity, students may look at an inch as being composed of two half-inches (or smaller increments) to obtaining the most precise measurement.	*Additivity*: Measures can be composed and decomposed. Ex. A student measures the cover of a book (16 in) that is larger than their ruler (12 in). The student must realize that they can add-on to the initial 12 inches of the ruler by combining the additional 4 inches with the 12 that they have measured.

When measuring liquid volume, stundents find it particularly interesting to experiment with containers that appear to hold different volumes, but actually hold the same. Similarly, containers that have a very different height and width should be used to help students dispell the belief that the tallest glass always holds the most liquid.

Once students have developed a firm grasp of measurement (esp. length) and using various tools to obtain these measurements, they begin to apply this concept to the ideas of perimeter and area. Before actually measuring the perimeter of a figure, students must first understand what the term means. Having students stand around the perimeter of a room or a rug on the floor helps them to understand that they are looking for the distance around the outside of the object. Students also benefit from actually tracing the perimeter of a figure using a piece of string and then laying out this continuous length for measurement.

As students begin to explore the concept of area, a similar example may be used as was in perimeter of looking at a rug or a taped off space in the classroom. To help students understand the difference of area and perimeter, they can begin by standing around the perimeter of the space and then step into the area and move about the space. This type of experience also helps students to understand why perimeter is measured in units of length and area is measured using **square** units of length.

When teaching area and perimeter, a rectangle is one of the most beneficial figures to begin with. In perimeter, it allows students to see that figures may have several different or similar measurements, but all must be added to find the overall distance around the figure. With area, students in third grade are looking to build an understanding of the actual tiling of square units that takes place inside of a figure and counting these squares to find the area. If given the opportunity to struggle and painstakingly count all of the tiles, students will find the solution of multiplying to find the area of this array of tiles.

Children's Literature:

- *Inch by Inch* by Leo Lionni

Sample: Suggested Standards-based Checks - Blueprint

- Time and Measurement; Scoring Rubric
- Perimeter and Area; Scoring Rubric

Big Idea 7
Quarter 3

Academic Plan
Mathematics – Grade Three (Course #5012050)

Suggested Big Idea Length:
10 – 14 days

Adopted Instructional Materials: Houghton Mifflin Harcourt, Go Math!

Big Idea Description: *Describe and Analyze Two-Dimensional Shapes*
Students will describe and analyze a variety of two dimensional shapes using their lines, angles, and various attributes. Students will demonstrate an understanding of equal areas through partitioning of shapes.

Manipulatives: Below are some of the manipulatives that should be included in the instruction of Big Idea 7. View the attached document, Grade 3 Big Idea 7 Manipulatives, for a comprehensive list of manipulatives and their suggested usage during Big Idea 7.

- Dot Paper
- Pattern Blocks
- Geo boards
- Straws, Craft Sticks
- Grid Paper

Paper Plane Shapes

Teacher Note:
Students should be familiar with irregular quadrilaterals, by their attributes, such as, a kite.

Standards	
Math Content Standards	Cross Content Standards
MAFS.3.G.1.1: Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. **MAFS.3.G.1.2:** (Assessed with NF.1.1) Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as ¼ of the area of the shape.*	**LAFS.3.SL.1.1:** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 *topics and texts*, building on others' ideas and expressing their own clearly. **LAFS.3.SL.1.2:** Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally. **LAFS.3.SL.1.3:** Ask and answer questions about information from a speaker, offering appropriate elaboration and detail. **LAFS.3.W.1.2:** Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

	Suggested Standards for Mathematical Practice **MAFS.K12.MP.3.1**: Construct viable arguments and critique the reasoning of others. • How can you prove that your solution is correct? • How can you define and classify two-dimensional shapes based on their attributes? **MAFS.K12.MP.6.1**: Attend to precision. • What math vocabulary is important in solving the word problem? • How can you use math vocabulary in your explanation?

Big Idea(s)
Describe and Analyze Two-Dimensional Shapes
Essential Outcome Question(s)
What are some ways to describe and classify two-dimensional shapes?

Conceptual Understandings	**Essential Question(s)**
• Identify attributes of quadrilaterals • Classify two-dimensional shapes based upon their attributes. • Identify angles within plane shapes.	• How can you describe two-dimensional shapes? • How can you describe the attributes of quadrilaterals? • How can you identify parallel lines?

Aligned Learning Goals		**District Adopted Materials**	**Supplemental Resources**	**Strategies for Differentiation**
Two-Dimensional Shapes 11 content + 1 progress monitoring check	Describe angles in plane shapes as right angle, greater than or less than *(G.1.1)* Identify and name quadrilaterals by their attributes *(G.1.1)* Identify, classify and compare quadrilaterals using attributes including; square, rectangle (parallelogram, rhombus, trapezoid and irregular quadrilaterals such as: kite) *(G.1.1)* Partition shapes into equal parts (G.1.2) Express the area of each part as a unit fraction of the whole (G.1.2)	Go Math! Chapter 12 Achieve the Core Go Math Guidance Documents	• Task Card: Classified • CPALMS: It's All About the Shapes • CPALMS: Quadrilateral Quest • CPALMS: Shape Up or Ship Out! • CPALMS: Fractions Meet Pattern Blocks • CPALMS: Fun with Pattern block Fractions • Illuminations Lesson: Parts of a Square	Reteach & Enrichment Support: Two-Dimensional Shapes The above document provides opportunities for reteach and enrichment with the current aligned learning goal.

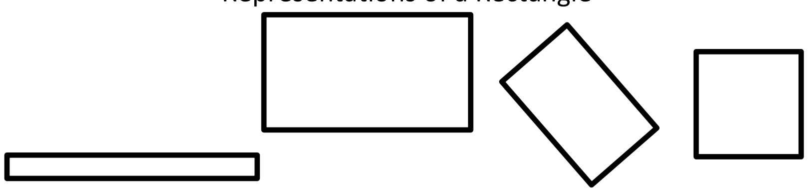
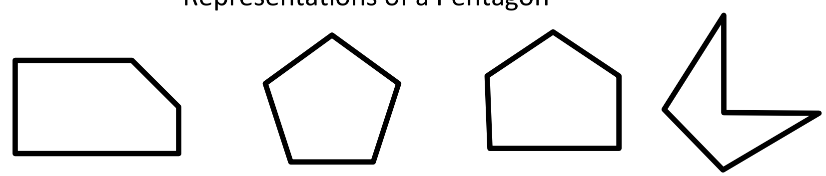
Instructional Strategies and Resources

Prerequisites from Grade 2:

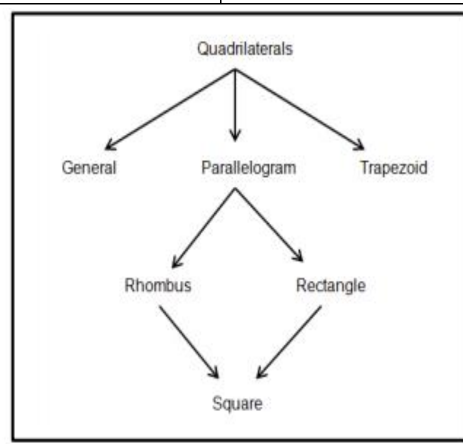
- Identify and describe shapes based on the number of sides: triangles, quadrilaterals, pentagons, hexagons
- Identify angles (not including naming)
- Sort two-dimensional shapes according to their sides and angles

In Big Idea 7, students will analyze and investigate two-dimensional shapes. Third grade geometry standards call for students to gain an understanding of different shapes, their attributes, and ways to categorize them based on these attributes. In third grade, students are building upon an understanding of shapes obtained in the primary grades that is primarily visual. They build on this experience and further investigate quadrilaterals. Students recognize shapes that are and are not quadrilaterals by examining the properties of a geometric figure. Students categorize a circle as being something round that looks like a plate, a rectangle is categorized as looking like a box, etc. This understanding in taken to a greater depth by learning what attributes actually define a shape. A rectangle is no longer a rectangle because it simply looks like a box, but because it has four sides, four right angles, and opposite sides are parallel and equal. This understanding is taken to an even greater level by having students look at non-examples and explain why they do not fit the criteria of a particular classification.

When determining the qualifying attributes of a figure, students should be exposed to various representations of the figure. For example: rectangles may be long and short, tall and wide, or even square. This is particularly important when looking at polygons with more than four sides. A pentagon is easily recognized when displayed as a regular pentagon, but often missed when portrayed as a "house."

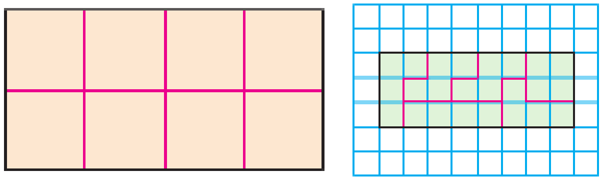
Representations of a Rectangle	Representations of a Pentagon
	

E.g.,



Third grade geometry standards also call for students to be able to partition or divide shapes into equal area. This challenge calls for the application of many concepts including fractions, area, and attributes of geometrical figures. Although many look at this standard as the basic cutting of shapes into equal sections, such as slicing a circle or square into equal slices, it also calls for more complex figures as shown below. Teachers should take care to show that not all slices are congruent or configured in the same way, but all have an equal area.

Partitioning of a Rectangle into Parts with an Equal Area



In the example on the left, the rectangle is partitioned into congruent pieces. All pieces are the same shape, size, and area. In the example on the right, all pieces have the same area, but there are four different configurations or shapes.

Children's Literature:

- *The Greedy Triangle* by Marilyn Burns
- *Rombus* by Sheila Rivera

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The following are suggestions teachers may consider as they plan the formative checkpoint they will use for this big idea of instruction.

Resources:

- Chapter 12 Mid-Chapter Checkpoint
- Chapter 12 Diagnostic Interview Assessment
- Journal Entries

MFAS Tasks 3.G.1.1:

- Identifying Quadrilaterals-Part One
- Identifying Quadrilaterals-Part Two
- Identifying Polygons
- Drawing Quadrilaterals

MFAS Tasks 3.G.1.2:

- Unit Fractions
- Two Equal Parts
- Four Parts of the Whole
- Halves of an Irregular Polygon

Sample: Suggested Standards-based Check – Blueprint

- Two-Dimensional Shapes; Scoring Rubric

Big Idea 8: Mastery of Grade Three
Quarter 4

Academic Plan
Mathematics – Grade Three (Course #5012050)

Adopted Instructional Materials: Houghton Mifflin Harcourt, Go Math!

Big Idea Description: *Mastery of Grade Three*
Before beginning material in Mastery of Grade Three, please make sure all Big Ideas prior have been completed, this includes all Summative Assessments.

In Quarter 4, instructional time should focus on mastery of the four critical areas for Third Grade:

1. developing understanding of multiplication and division and strategies for multiplication and division within 100
2. developing understanding of fractions, especially unit fractions (fractions with numerator 1)
3. developing understanding of the structure of rectangular arrays and of area
4. describing and analyzing two-dimensional shapes

Teachers are encouraged to use Mastery of Grade Three in one of two ways.

Option 1. Select the Critical Area that your students' data shows that they need more time or support with. The data to be reviewed should include, but isn't limited to: summative assessment data, Formative Checkpoint data, CCE data, and classroom observation.

- a. Utilize Model Eliciting Activities (MEAs)[1] to support the instruction in those areas that the students need more support with.
  - i. 2 MEAs take approximately one week to complete.
- b. Utilize task cards, reteach/enrich documents, along with any additional materials from Go Math! to support instruction.
- c. Use Formative Checkpoints (MFAS Tasks or Performance Tasks) to assess progress of student mastery within the Critical Area or to support instruction.
- d. Once students show mastery within a Critical Area move to another Critical Area based upon data in option 1.

Option 2. Instruct within each Critical Area.

- a. Choose 2-3 MEAs to complete with students.
  - i. 2 MEAs take approximately one week to complete.
  - ii. Critical Area 4 doesn't contain any MEAs. Please select one of the recommended projects or use another project based learning activity.
- b. Utilize task cards, reteach/enrich documents, along with any additional materials from Go Math! to support instruction.
- c. Spending instructional time in each Critical Area will ensure that all Critical Areas have been reviewed and revisited prior to the end of the school year.

[1]**Model Eliciting Activities (MEAs):** MEAs are open ended, interdisciplinary problem-solving activities that are meant to reveal students' thinking about the concepts embedded in the realistic activities.

Teacher Note: During this time of year, it is vital for third grade students to master the basic multiplication and division facts. It is our recommendation to continue with daily fluency instruction to help students become fluent with their multiplication and division.

Critical Area 1

Developing understanding of multiplication and division and strategies for multiplication and division within 100.

Math Content Standards	MEA Cross Content Standards	
MAFS.3.NBT.1.3: Multiply one digit whole numbers by multiples of 10 **MAFS.3.OA.1.1**: Interpret products of whole numbers **MAFS.3.OA.1.2:** Interpret whole-number quotients of whole numbers **MAFS.3.OA.1.3**: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities **MAFS.3.OA.1.4**: Determine the unknown whole number in a multiplication or division equation relating three whole numbers **MAFS.3.OA.2.5**: Apply properties of operations as strategies to multiply and divide **MAFS.3.OA.2.6:** Understand division as an unknown-factor problem **MAFS.3.OA.3.7**: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division or properties of operations **MAFS.3.OA.4.8**: Solve two-step word problems using the four operations **MAFS.3.OA.4.9**: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations	**SC.3.P.11.1** **LAFS.3.L.2.3** **LAFS.3.RI.1.1** **LAFS.3.RI.1.2** **LAFS.3.RI.3.9** **LAFS.3.SL.1.1** **Standards for Mathematical Practice** **MAFS.K12.MP.1.1**: Make sense of problems and persevere in solving them. **MAFS.K12.MP.2.1**: Reason abstractly and quantitatively. **MAFS.K12.MP.3.1**: Construct viable arguments and critique the reasoning of others. **MAFS.K12.MP.4.1**: Model with mathematics. **MAFS.K12.MP.5.1**: Use appropriate tools strategically. **MAFS.K12.MP.6.1**: Attend to precision. **MAFS.K12.MP.7.1**: Look for and make use of structure. **MAFS.K12.MP.8.1**: Look for and express regularity in repeated reasoning.	**LAFS.3.W.1.1** **LAFS.3.W.1.2** **LAFS.3.W.2.4** **LAFS.3.W.2.5** **LAFS.3.W.3.7** **LAFS.3.W.4.10**

MEAs	District Adopted Materials	Supplemental Resources	Strategies for Differentiation
Lizard Lights **OA.1.3, OA.4.8**: Students will use a real-world problem solving situation to determine the best types of light bulbs to maintain an appropriate environment for a captive lizard. The MEA incorporates math through the use of a budget and addresses science standards in science Big Ideas 11 and 17. Cupid's Carnival Rides **OA.1.3, OA.1.4**: In this lesson, students will look at different carnival rides and will determine which ride will make the most profit by looking at factors such as number of tickets per ride, the cost per ticket, the length of the ride, the number of hours the ride is open and the cost to operate the ride. Students will need to use different operations in order to solve the tasks and will be required to do multi-steps. Tricky Rice Math Patterns **OA.4.9**: Students will use mathematical patterns to solve the problem, along with the analysis of data. After reading *One Grain of Rice* by	Go Math! Chapters 3-7 Big Idea 3 Big Idea 4	• Task Card: Arrr-rays • Task Card: Broken Arrays • Task Card: Leg Riddles • Task Card: Tile Patterns	• Reteach & Enrichment Support: Conceptual Understanding of Multiplication • Reteach & Enrichment Support: Strategies for Solving Multiplication Problems • Reteach & Enrichment Support: Use Algebraic Thinking to Multiply • Reteach & Enrichment Support: Understanding Division

Demi, students will look for ways to help Rani's relative find a new pattern so she can secure a large supply of rice to feed the people of her province in India. The twist is likely to cause controversy, so prepare for some strong debates.			• Reteach & Enrichment Support: Strategies for Division The above documents provide opportunities for reteach and enrichment for Mastery of Grade Three.
Florida Fish Aquarium Challenge **OA.1.1, OA.1.2, OA.1.3**: This task involves having students look at three different fish tank sizes and determine, using a data list, which fish will fit in these fish tanks based on their size. They will also need to look at other characteristics to determine how to group the fish together. Students will have to either multiply, divide or add repeatedly in order to find different solutions on how to place the fish in each tank size.			
Spin Beyblades **OA.2.6, OA.3.7**: Students will evaluate data and create a process for which bey blade would be the "best" for Mr. Brown's toy store. Data will include customer feedback, price, style and revolutions per minute. Students will apply understanding of division in problem-solving. They will write a letter explaining their procedure using grade-appropriate language conventions.			

Formative Checkpoint: A continuous process used by teachers and students to utilize formal and informal assessments to elicit evidence regarding the degree to which a particular student or class of students has mastered the aligned learning goals. Based on the evidence collected, teachers adjust their ongoing instructional activities.

The following are suggestions teachers may consider as they plan the formative checkpoint they will use for this big idea of instruction.

Resources:

- Chapter 3 Performance Task: Tile Designs TE; Tile Designs Task
- Chapter 4 Performance Task: Bake Sale TE; Bake Sale Task
- Chapter 5 Performance Task: School Play TE; School Play Task
- Chapter 6 Performance Task: At the Farm Stand TE; At the Farm Stand Task
- Chapter 7 Performance Task: Habib's Pet Shop TE; Habib's Pet Shop Task
- Critical Area Performance Task: At the Toy Store TE; At the Toy Store Task

Critical Area 2 Developing understanding of fractions, especially unit fractions (fractions with numerator 1)	
Math Content Standards	Cross Content Standards
MAFS.3.NF.1.1: Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b. **MAFS.3.NF.1.2**: Understand a fraction as a number on the number line; represent fractions on a number line diagram. **MAFS.3.NF.1.3:** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.	**LAFS.3.W.1.1** Suggested Standards for Mathematical Practice **MAFS.K12.MP.1.1**: Make sense of problems and persevere in solving them. **MAFS.K12.MP.2.1**: Reason abstractly and quantitatively. **MAFS.K12.MP.3.1**: Construct viable arguments and critique the reasoning of others. **MAFS.K12.MP.4.1**: Model with mathematics. **MAFS.K12.MP.5.1**: Use appropriate tools strategically. **MAFS.K12.MP.6.1**: Attend to precision. **MAFS.K12.MP.7.1**: Look for and make use of structure. **MAFS.K12.MP.8.1**: Look for and express regularity in repeated reasoning.

MEAs	District Adopted Materials	Supplemental Resources	Strategies for Differentiation
Happy Feet! **NF.1.1**: In this chocolaty delicious lesson, your students will enjoy learning how to compare fractions and use that mathematical knowledge to create an inventory for a new local shoe store, Happy Feet Footwear. They will also write to express their opinions and provide reasons to justify their opinions. The Cookie Jar Wants a New Cookie! **NF.1.3**: This lesson asks students to recommend which cookie the owners of The Cookie Jar should add to their menu. Before they make their decision, the students have to convert fractions so they have like denominators. Once they have converted the fractions they will be able to see exactly how many people voted for each cookie and they can factor in that information along with additional cookie facts to make their final recommendation.	Go Math! Chapters 8-9 Big Idea 5	• Task Card: Sharing One Pizza • Task Card: Fraction Pizza • Task Card: Fraction War • Task Card: Spin and Compare	• Reteach & Enrichment Support: Understanding Fractions • Reteach & Enrichment Support: Comparing Fractions The above documents provide opportunities for reteach and enrichment for Mastery of Grade Three.

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Resources:

- Chapter 8 Performance Task: In the Kitchen TE; In the Kitchen Task
- Chapter 9 Performance Task: Making a Mural TE; Making a Mural Task

Critical Area Performance Task: A Barbeque TE; A Barbeque Task

Critical Area 3 Developing understanding of the structure of rectangular arrays and of area.	
Math Content Standards	Cross Content Standards
MAFS.3.MD.3.5: Recognize area as an attribute of plane figures and understand concepts of area measurement. **MAFS.3.MD.3.6:** Measure areas by counting unit squares (square cm., square m., square in., square ft., and improvised units). **MAFS.3.MD.3.7:** Relate area to the operations of multiplication and addition.	**LAFS.3.RI.1.1** **LAFS.3.W.2.5** **LAFS.3.SL.1.1** **SC.3.L.17.1** **LAFS.3.SL.2.6** Suggested Standards for Mathematical Practice **MAFS.K12.MP.1.1:** Make sense of problems and persevere in solving them. **MAFS.K12.MP.2.1:** Reason abstractly and quantitatively. **MAFS.K12.MP.3.1:** Construct viable arguments and critique the reasoning of others. **MAFS.K12.MP.4.1:** Model with mathematics. **MAFS.K12.MP.5.1:** Use appropriate tools strategically. **MAFS.K12.MP.6.1:** Attend to precision. **MAFS.K12.MP.7.1:** Look for and make use of structure. **MAFS.K12.MP.8.1:** Look for and express regularity in repeated reasoning.

MEAs	District Adopted Materials	Supplemental Resources	Strategies for Differentiation
What Does Your Garden Grow? **MD.3.5, MD.3.6**: Students use data about the temperature and water requirements of plants to figure out when the plants should be planted. They also use data such as space requirements and time until harvest to make judgments about which plants would best suit the needs of students planning a school garden in Florida. Playground Protection **MD.3.5, MD.3.6**: Students will decide which type of protective surface should be put in under a new playground unit. They will consider many factors before ranking their decisions about the best surface. Lett'uce Begin Our Area **MD.3.7**: In this garden of veggies, students will find the area to determine which vegetable garden beds should be created and where they should be located. Students will submit a letter to the client explaining their procedure for choosing the garden beds and layout.	Go Math! Chapter 11 Big Idea 6	• Task Card: Perimeter Playground	• Reteach & Enrichment Support: Area and Perimeter The above document provides opportunities for reteach and enrichment for Mastery of Grade Three.

Treehouse Makeover **MD.3.7**: The Shady Oak Treehouse Club is doing a makeover and needs help choosing flooring. Students will be asked to figure area, calculate cost, and add installation fees to cost. The students will then rank the flooring and choose the best one for the makeover. The data provided is: a model of the treehouse (in square yards), flooring price per square yard, and ratings for ease of cleaning and comfort. In the twist, students will be provided with an installation fee for each flooring material and must decide how to change their procedure with the new information.			

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Resources:

- Chapter 11 Performance Task: Summer at the Petting Zoo TE; Summer at the Petting Zoo Task

Critical Area 4 Describing and analyzing two-dimensional shapes.	
Math Content Standards	Cross Content Standards
MAFS.3.G.1.1: Understand that shapes in different categories may share attributes, and that the shared attributes can define a larger category. Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. **MAFS.3.G.1.2:** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.	**LAFS.3.RI.2.4** Suggested Standards for Mathematical Practice **MAFS.K12.MP.1.1:** Make sense of problems and persevere in solving them. **MAFS.K12.MP.2.1:** Reason abstractly and quantitatively. **MAFS.K12.MP.3.1:** Construct viable arguments and critique the reasoning of others. **MAFS.K12.MP.4.1:** Model with mathematics. **MAFS.K12.MP.5.1:** Use appropriate tools strategically. **MAFS.K12.MP.6.1:** Attend to precision. **MAFS.K12.MP.7.1:** Look for and make use of structure. **MAFS.K12.MP.8.1:** Look for and express regularity in repeated reasoning.

Project Based Learning	District Adopted Materials	Supplemental Resources	Strategies for Differentiation
Go Math! Critical Area Review Project Task: Gems and Jewelry Go Math! Critical Area Review Project TE: Gems and Jewelry **G.1.1:** Students will connect geometric shapes with jewelry design by describing and analyzing two-dimensional shapes. Jewelry designers use a variety of math skills as they create jewelry using gems of different shapes to make patterns. Critical Area Review Project: Clubhouse **G.1.1, G.1.2:** Students will create a floor plan and 3-dimensional model of their 'dream' clubhouse.	Go Math! Chapter 12 Big Idea 7	• Task Card: Classified	• Reteach & Enrichment Support: Two-Dimensional Shapes The above document provides opportunities for reteach and enrichment for Mastery of Grade Three.

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The following are suggestions teachers may consider as they plan the formative checkpoint they will use for this big idea of instruction.

Resources:

- Chapter 12 Performance Task: Stained Glass Art TE; Stained Glass Art Task
- Critical Area Performance Task: Making Quilts TE; Making Quilts Task