3rd Grade Mathematics Map/Pacing Guide
2021-2022

Topics & Standards *Quarter 1* *Time Frame Weeks 1-8*	**Unit 1** **THREE-DIGIT NUMBERS** **Use place value understanding and properties of operations to perform multi-digit arithmetic. A range of strategies and algorithms may be used.** • **3.NBT.1** Use place value understanding to round whole numbers to the nearest 10 or 100. • **3.NBT.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. **Unit 2** **Multiplication and Division** **Represent and solve problems involving multiplication and division.** • **3.OA.1** Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. (Note: These standards are written with the convention that a x b means a groups of objects each; however, because of the commutative property, students may also interpret 5 x 7 as the total number of objects in 7 groups of 5 objects each.) **Understand properties of multiplication and the relationship between multiplication and division.** • **3.OA.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.) Students need not use formal terms for these properties. **Use place value understanding and properties of operations to perform multi-digit arithmetic. A range of strategies and algorithms may be used.** • **3.NBT.3** Multiply one-digit whole numbers by multiples of 10 in the range of 10-90, e.g., 9 x 80, 5 x 60 using strategies based on place value and properties of operations.
	MAJOR **SUPPORTING** **ADDITIONAL** Students should spend the majority of learning on the major work of the grade level; which should account for at least 65% of the academic year (Achieve the core, n.d.)**. Major content should be emphasized via a greater number of days of instruction, depth and mastery.**

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	Assessment (Evidence)	*Spiral Review of Concepts*	*Curriculum & Textbook Resources*	*Key Concept tools & practices*
	Ready Ohio Math Assessment Resources ●Lesson Quiz ●i-Ready Diagnostic (fall, winter, spring) ● Unit Interim Assessment or i-Ready Standards Mastery ●Unit Self-check **Unit 1 Performance Task** Math in Action	**My Operations and Algebraic Thinking: Focus on Addition using arrays** Resources: ● Ready Teacher Toolbox Grade 2: Math Center Activities ● Kahn Academy ● i-Ready **Number and Operations in Base Ten-Focus on compare numbers** Resources: ● Ready Teacher Toolbox, Grade 2: Math Center Activities ● Kahn Academy ● i-Ready ● EdPuzzle	**Ready Classroom** **Unit 1 Number and Operations in Base 10** Lesson 1: Use Place Value to Round Numbers Lesson 2: Add Three-Digit Numbers Lesson 3: Subtract Three-Digit Numbers **Unit 2 Operations and Algebraic Thinking** Lesson 4: Understand the Meaning of Multiplication Lesson 5: Multiply with 0, 1,2,5, and 10 Lesson 6: Multiply with 3,4, and 6 Lesson 7: Multiply with 7,8, and 9 Lesson 8: Use Order and Grouping to Multiply **Number and Operations in Base 10** Lesson 9: Use Place Value to Multiply Other Resources: ● Achieve the Core https://achievethecore.org/category/854/mathematics-lessons ● ODE Model Curriculum Resources	**Available on Teacher Toolbox:** ● Interactive Tutorials ● Prerequisite Ready Lessons ● Tools for Instruction ● Math Center Activities ● Ready-Central (Instructional Best Practices Videos ● http://readycentral.com/ ● Journals / Provisional Writing ● Math Models ● Discourse Cards ● Non-linguistic representations ● Resource Selector Tool (under Program Implementation)

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			https://education.ohio.gov/Topics/Learning-in-Ohio/Mathematics	

Topics & Standards

Quarter 2

Time Frame Weeks 1-8

Unit 2, cont'd.

Represent and solve problems involving multiplication and division.

- **3.OA.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.
- **3.OA.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. Drawings need not show details, but should show the mathematics in the problem.
- **3.OA.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 = ?.

Understand properties of multiplication and the relationship between multiplication and division.

- **3.OA.6** Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

- **3.OA.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

Multiply and divide within 100.

- **3.OA.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 limit to division without remainders. By the end of Grade 3, know from memory all products of two one-digit numbers.

Unit 3

MULTIPLICATION

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

- **3.MD.5** Recognize area as an attribute of plane figures and understand concepts of area measurement.
  - 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.

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- **3.MD.6** Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).
- **3.MD.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 (represent the distributive property with visual models including an area model). Use area models to represent the distributive property in mathematical reasoning.
    D. Recognize area as additive. Find the area of figures composed of rectangles by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

Represent and solve problems involving multiplication and division.

- **3.OA.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. Drawings need not show details, but should show the mathematics in the problem.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

- **3.OA.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter or a symbol which stands for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. This standard is limited to problems posed with whole numbers and having whole-number answers. Students may use parenthesis for clarification since algebraic order of operations is not expected.

Represent and interpret data.

- **3.MD.3** Create scaled picture graphs to represent a data set with several categories. Create scaled bar graphs to represent a data set with several categories. Solve two-step “how many more” and “how many less” problems using information presented in the scaled graphs. For example, create a bar graph in which each square in the bar graph might represent 5 pets, then determine how many more/less in two given categories.

MAJOR **SUPPORTING** **ADDITIONAL**

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			ODE Model Curriculum Resources https://education.ohio.gov/Topics/Learning-in-Ohio/Mathematics	

Topic & Standard ***Quarter 3*** ***Time Frame Weeks 1-8***	**Unit 4** **FRACTIONS** **Develop understanding of fractions as numbers. Expectations in this domain are limited to fractions with denominators 2,3,4,6, and 8.** ● **3.NF.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. ● **3.NF.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 (which may be greater than one) 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. ● **3.NF.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., ½ = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model. c) 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) 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. **Unit 5** **MEASUREMENT AND DATA** ● **3.MD.4** Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by creating a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters. **Solve problems involving money, measurement and estimation of intervals of time, liquid volumes, and masses of objects.** ● **3.MD.1** Work with time and money ● Tell and write time to the nearest minute and measure time intervals in minutes (within 90 minutes). Solve real-world problems involving addition and subtraction of time intervals (elapsed time) in minutes, e.g., by representing the problem on a number line diagram or clock. ● Solve word problems by adding and subtraction within 1,000, dollars with dollars and cents with cents (not using dollars and cents simultaneously) using the $ and ¢ symbol appropriately (not including decimal notation.)

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MAJOR **SUPPORTING** **ADDITIONAL**

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Assessment (Evidence)	*Spiral Review of Concepts*	*Curriculum & Textbook Resources*	*Key Concept tools & practices*
Ready Ohio Math Assessment Resources ●Lesson Quiz ●i-Ready Diagnostic (fall, winter, spring) ● Unit Interim Assessment or i-Ready Standards Mastery ●Unit Self-check **Unit 5 Performance Task**	**Operations and Algebraic Thinking: Focus on Multiplication and Division Facts, Strategies, and real-life situation word problems** Resources: ● Ready Teacher Toolbox Grade 3: Math Center Activities ● Ready Performance Assessment ● Kahn Academy ● i-Ready ● EdPUzzle **Number and Operations in Base Ten-Focus on rounding numbers, adding and subtracting numbers, multiplying by multiples of 10** Resources: ● Ready Teacher Toolbox, Grade 3:	**Ready Classroom** **Unit 4 Number and Operations-Fractions** Lesson 20: Understand What a Fraction Is Lesson 21: Understand Fractions on a Number Line Lesson 22: Understand Equivalent Fractions Lesson 23: Find Equivalent Fractions Lesson 24: Understand Comparing Fractions Lesson 25: Use Symbols to Compare Fractions **Measurement and Data** Lesson 26: Measure Length and Plot Data on Line Plots **Unit 5 Measurement and Data** Lesson 27: Time (add in Money) Other Resources: ● Achieve the Core https://achievethecore.org/category/854/mathematics-lessons	**Available on Teacher Toolbox:** ● Interactive Tutorials ● Prerequisite Ready Lessons ● Tools for Instruction ● Math Center Activities ● Think-Share-Compare Routine (under Program Implementation) ● Ready-Central (Instructional Best Practices Videos ● http://readycentral.com/ ● Journals / Provisional Writing ● Math Models ● Discourse Cards ● Non-linguistic representations ● Resource Selector Tool (under Program Implementation)

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		Math Center Activities ● Edcite.com ● Ready Performance Assessment ● MobyMax ● Kahn Academy ● i-Ready **<u>Number and Operations-Fractions</u>-Focus on What is a Fraction, fractions on a number line, equivalent fractions** Resources: ● Ready Teacher Toolbox, Grade 3: Math Center Activities ● Ready Performance Assessment ● Kahn Academy ● i-Ready ● EdPUzzle	● ODE Model Curriculum Resources https://education.ohio.gov/Topics/Learning-in-Ohio/Mathematics	

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Topic & Standard Quarter 4 *Time Frame Weeks 1-8*	**Unit 5** **MEASUREMENT AND DATA** **Solve problems involving money, measurement and estimation of intervals of time, liquid volumes, and masses of objects.** ● **3.MD.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 whole numbers to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. Excludes multiplicative comparison problems involving notions of "times as much" **Unit 6** **GEOMETRY** **Reason with shapes and their attributes.** ● **3.G.1** Draw and describe triangles, quadrilaterals (rhombuses, rectangles, and squares), and polygons (up to 8 sides) based on the number of sides and the presence or absence of square corners (right angles). **Reason with shapes and their attributes** ● **3.G.2** 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. **Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.** ● **3.MD.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. **MAJOR SUPPORTING ADDITIONAL** Students should spend the majority of learning on the major work of the grade level; which should account for at least 65% of the academic year (Achieve the core, n.d.)**. Major content should be emphasized via a greater number of days of instruction, depth and mastery.**

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		fractions on a number line, equivalent fractions, comparing fractions Resources: ● Ready Teacher Toolbox, Grade 3: Math Center Activities ● Ready Performance Assessment ● Kahn Academy ● i-Ready ● EdPuzzle **<u>Measurement and Data</u>-Focus on Area, Perimeter, Time, Line Plots** Resources: ● Ready Teacher Toolbox, Grade 3: Math Center Activities ● Ready Performance Assessment ● Kahn Academy ● i-Ready ● Edpuzzle		