

Third Grade

Quarter 1

Month: August/September/October

Domain(s):

- Operations and Algebraic Thinking
- Number and Operations in Base Ten
- Measurement and Data

Cluster(s):

- Solve problems involving the four operations, and identify and explain patterns in arithmetic
- Use place value understanding and properties of operations to perform multi-digit arithmetic
- Represent and interpret data

Standard(s):

3.OA.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 whole 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 should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).)

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.

3.MD.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.

Targeted Skills:

- Recognize and model whole numbers up to 1,000
- Read whole numbers up to 100,000
- Write whole numbers in standard expanded and word forms
- Understand place value of whole numbers up to 1,000
- Order and compare whole numbers up to 1,000 using words and the symbols $<$, $>$, $=$
- Compare and order money amounts including dollars and cents
- Locate whole numbers and halves on a number line
- Complete addition and subtraction fact families
- Round numbers to the nearest ten and hundred
- Identify odd and even whole numbers
- Understand and compute elapsed time
- Measure lengths on a ruler using halves and fourths of an inch
- Solve problems using a number line
- Understand properties of operation (commutative, identity, associative)

Key Vocabulary:

addends	sum	commutative (order) property of addition	even	odd	fourths
difference	round	estimate	equation	place	
value	add	subtract	strategy	operation	length
quarters	fact family				halves

Third Grade

Quarter 2

Month: October/November/December

Domain(s):

- Operations and Algebraic Thinking
- Number and Operations in Base Ten
- Measurement and Data

Cluster(s):

- Represent and solve problems involving multiplication and division.
- Understand properties of multiplication and the relationship between multiplication and division.
- Multiply and divide within 100.
- Solve problems involving the four operations, and identify and explain patterns in arithmetic.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.
- Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
- Represent and interpret data.

Standard(s):

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. *For example, describe a context in which a total number of objects can be expressed as 5×7 .*

3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and the measurement quantities, e.g. by using drawings and equations with a symbol for the unknown number to represent 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 $8x = 48$*

3.OA.5: Apply properties of operation as strategies to multiply and divide.

3.OA.7: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows, 40 divided by $5 = 8$) or properties of operations.

3.OA.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 whole 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 should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).)

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.*

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.

3.MD.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.

3.MD.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.*

Targeted Skills:

- Read, write, recognize, and model equivalent representations of whole numbers and their place values up to 10,000
- Write whole numbers in standard, expanded, and word forms up to 1,000
- Order and compare whole numbers up to 10,000 using symbols ($<$, $>$, or $=$) and words (e.g. greater (more) than, less than, equal to, between

- Solve problems involving the value of a collection of bills and coins whose total value is \$5.00 or less, and make change
- Solve problems and number sentences involving addition and subtraction with regrouping
- Solve problems by subtracting multiples of 10, 100, and 1,000
- Round numbers to the nearest 100
- Estimate and round differences to tens
- Use the inverse relationships between addition and subtraction to complete basic fact sentences and solve problems (e.g., $5+3=8$ and $8-3=?$)
- Solve problems involving simple unit conversions within the same measurement system for time
- Solve problems involving simple elapsed time in half hours
- Determine a missing term in a pattern (sequence), describe a pattern (sequence), and extend a pattern (sequence) when given a description or pattern (sequence)
- Multiply one digit numbers by a multiple of 10 up to 100
- Memorize multiplication facts 0-9
- Understand the commutative, associative and distributive property
- Know equal groups, arrays
- Know what each number in the equation represents e.g. $5 \times 7 = 5$ groups of 7 objects

Key Vocabulary:

place value	difference	multiplication	factors	array	
product	multiples	commutative (order) property		add subtract	strategy
operation	quantity	data picture graph	bar graph	distributive property of multiplication	
associative(grouping) property of multiplication					

Third Grade

Quarter 3

Month: December, January, February, March

Domain(s):

- Operations and Algebraic Thinking
- Number and Operations – Fractions
- Measurement and Data
- Geometry

Cluster(s):

- Represent and solve problems involving multiplication and division.
- Understand properties of multiplication and the relationship between multiplication and division.
- Multiply and divide within 100
- Solve problems involving the four operations, and identify and explain patterns in arithmetic.
- Develop understanding of fractions as numbers.
- Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
- Represent and interpret data.
- Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
- Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
- Reasons with shapes and their attributes.

Standard(s):

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. *For example, describe a context in which a total number of objects can be expressed as 5×7 .*

3.OA.2: Interpret whole-number quotients of whole numbers, e.g., interpret 56 divided by 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 divided by 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.

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 $8 \times ? = 48$*

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

3.OA.7: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows 40 divided by $5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

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.*

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.

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. $\frac{1}{2} = \frac{2}{4}$, $\frac{4}{6} = \frac{2}{3}$. 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 $3 = \frac{3}{1}$; Recognize the $\frac{6}{1} = 6$; locate $\frac{4}{4}$ 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.

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 to solve one-sep 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.

3.MD.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.

3.MD.5: Recognize area 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.

3.MD.6: Measure areas by counting unit squares (squares 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 $a \times b$ and $a \times c$. 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.

3.MD.8: Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same

area and different perimeters.

3.G.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.

Targeted Skills:

- Write numbers in more than one way
- Know how multiplication and division relate
- Know how multiplication and addition relate
- Multiply one digit numbers by a multiple of 10 up to 100
- Understand the patterns and their relationships
- Finding the unknown in an equation
- Learn the geometry solids and shapes
- Understand fractions as being a part of a whole
- Know how division and subtraction relate
- Know how fractions can be written in more than one way
- Know how measuring length, perimeter, capacity, and weight can be useful
- Tell how shapes are alike and different

Key Vocabulary:

classify	division	divisor	dividend	quotient	point	line
line segment	intersecting lines		parallel	polygon	side	vertex
quadrilateral	rhombus		rectangle	square	parallelogram	compare
complete	trapezoid		describe	equivalent	explain	support/justify
halves	thirds	fourths		sixths	eighths	fraction
numerator	denominator		equivalent fractions		equal parts	inch
fraction of an inch	line plot	liter	grams	kilograms	volume	mass
milliliters	perimeter	area	square unit	distributive property		

Third Grade Quarter 4

Month: March/April/May/June

Domain(s):

- Operations and Algebraic Thinking
- Number and Operations in Base Ten
- Numbers and Operations/Fractions
- Measurement and Data
- Geometry

Cluster(s):

- Represent and solve problems involving multiplication and division.
- Understand properties of multiplication and the relationship between multiplication and division.
- Multiply and divide within 100.
- Solve problems involving the four operations, and identify and explain patterns in arithmetic.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.
- Develop understandings of fractions as numbers.
- Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
- Reason with shapes and their attributes.
- Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
- Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
- Represent and interpret data.

Standard(s):

3.OA.5: Apply properties of operation as strategies to multiply and divide.

3.OA.7: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows, 40 divided by $5 = 8$) or properties of operations.

3.OA.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 whole 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 should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).)

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.*

3.NBT.1: Use place value understanding to round whole numbers to the nearest 10 or 100.

3.NBT.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.

3.NF.3: Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.

3.MD.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.

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 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.

3.MD.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.*

3.MD.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

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,” 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.

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 rectangle 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 $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.
- d. Recognize area as additive. Find areas of rectilinear figure by decomposing them into non-overlapping parts, applying this technique to solve real world problems.

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.

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 $\frac{1}{4}$ of the area of the shape.

Targeted Skills:

- Know how multiplication and division are related
- Know commutative property, associative property, and distributive property of multiplication
- Understand fractions on a number line
- Recognize and generate equivalent fractions
- Solve problems with fractions
- How can fractions be written in more than one way
- Represent problems involving fractions using models
- Divide shapes into equal parts and name the fractions
- Use tiles to measure area
- Understand units, grams, kilograms, liters (liquid and masses)
- Measure length with ruler: $\frac{1}{4}$, $\frac{1}{2}$, 1 inch
- Complete measurement-using area, square units and write answers in square inch, cm, m, ft.
- Show an understanding of the perimeter of a polygon.
- Tell time to the nearest minute.
- Understand and use elapsed time.
- Use picture graphs, bar graphs and line plot to solve problems.

Key Vocabulary:

inch	fractions of and inch	line plot	liter	grams	kilograms	volume	mass
scale	perimeter	area	hour	square unit	hour	half hour	minute
a.m./p.m.		elapsed time		pictograph	key	bar graph	
commutative (order) property		picture graph		distributive property of multiplication			
associative(grouping) property of multiplication							

