Correlation of New York State Common Core Learning Standards for Mathematics to i-Ready Diagnostic & Instruction Mathematics Lessons

Grade K

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
K.CC.1 Count to 100 by ones . . .	Counting and Ordering to 100 Counting On: 1 to 100
K.CC.1 Count to 100 by ones and by tens.	Numerals and Counting to 10* Counting with One-to-One Correspondence* Counting Objects in a Set* Counting to 20* Counting On* Counting and Ordering to 20* Counting and Ordering to 30*
K.CC.2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1).	Counting On Counting On: 1 to 100
K.CC.3 . . . Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).	Counting Objects in a Set Counting and Ordering to 20
K.CC.3 Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).	Numerals and Counting to 10* Counting with One-to-One Correspondence* Counting and Ordering to 30 Counting and Ordering to 100*
K.CC.4.a When counting objects, say the number names in the standard order, pairing	Numerals and Counting to 10

**This lesson is related to the aligned standard*

Grade K (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
each object with one and only one number name and each number name with one and only one object.	Counting with One-to-One Correspondence Counting and Ordering to 20 Counting and Ordering to 30 Counting and Ordering to 100
K.CC.4.b Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.	Numerals and Counting to 10 Counting with One-to-One Correspondence Counting Objects in a Set Counting and Ordering to 20 Counting and Ordering to 30 Counting and Ordering to 100
K.CC.4.c Understand that each successive number name refers to a quantity that is one larger.	One More One Less*
K.CC.4.d Develop understanding of ordinal numbers (first through tenth) to describe the relative position and magnitude of whole numbers.	Ordinal Numbers* Ordinal Numbers: 1st Through 10th
K.CC.5 Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.	Numerals and Counting to 10 Counting with One-to-One Correspondence Counting Objects in a Set Counting to 20 Counting and Ordering to 20

**This lesson is related to the aligned standard*

Correlation of New York State Common Core Learning Standards for Mathematics to Lessons (continued)

Grade K (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Counting and Ordering to 30 Counting and Ordering to 100*
K.CC.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.	Comparing Sets
K.CC.7 Compare two numbers between 1 and 10 presented as written numerals.	Comparing Sets* Comparing Numbers to 100 Using Symbols*
K.OA.1 Represent . . . subtraction with . . . equations.	Taking Away to Subtract Counting Back to Subtract Addition Number Sentences Subtraction Concepts: Separation Subtraction Concepts: Part-Part-Whole Subtraction Concepts: Comparison
K.OA.1 Represent . . . subtraction with objects . . . or equations.	Counting Back to Subtract 1, 2, or 3 Using Length to Represent Subtraction
K.OA.1 Represent addition . . . with . . . equations.	Addition Facts for 10 Adding Three Numbers
K.OA.1 Represent addition . . . with objects . . . or equations.	Joining Sets to Add Counting On to Add

**This lesson is related to the aligned standard*

Correlation of New York State Common Core Learning Standards for Mathematics to Lessons (continued)

Grade K (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
K.OA.1 Represent addition . . . with objects, . . . drawings, . . . or equations.	Addition Facts
K.OA.1 Represent addition and subtraction with objects, . . . drawings, . . . [and] acting out situations . . .	Acting Out Addition and Subtraction
K.OA.2 Solve . . . subtraction word problems, . . . e.g., by using objects or drawings to represent the problem.	Taking Away to Subtract Counting Back to Subtract
K.OA.2 Solve addition . . . word problems, . . . e.g., by using objects or drawings to represent the problem.	Joining Sets to Add Counting On to Add
K.OA.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.	Acting Out Addition and Subtraction Using a Number Line to Add and Subtract Addition Number Sentences* Counting On to Solve Addition Problems* Addition Facts: Doubles* Adding Three Numbers* Subtraction Concepts: Separation* Subtraction Concepts: Part-Part-Whole * Subtraction Concepts: Comparison* Counting Back to Subtract 1, 2, or 3* Using Length to Represent Subtraction*
K.OA.3 Decompose numbers . . . equal to 10 into pairs in more than one way, e.g., by	Composing and Decomposing with 10 As a Benchmark

**This lesson is related to the aligned standard*

Grade K (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).	Complements of 10 Addition Facts for 10
K.OA.3 Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).	Composing and Decomposing with 5 As a Benchmark
K.OA.4 For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.	Composing and Decomposing with 5 As a Benchmark* Composing and Decomposing with 10 As a Benchmark Complements of 10 Addition Facts for 10
K.OA.5 Fluently . . . subtract within 5.	Taking Away to Subtract Counting Back to Subtract
K.OA.5 Fluently add . . . within 5.	Joining Sets to Add Counting On to Add
K.OA.5 Fluently add and subtract within 5.	Acting Out Addition and Subtraction Using a Number Line to Add and Subtract Addition Number Sentences* Counting On to Solve Addition Problems* Addition Facts: Doubles*

**This lesson is related to the aligned standard*

Grade K (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Subtraction Concepts: Separation* Subtraction Concepts: Part-Part-Whole * Subtraction Concepts: Comparison* Counting Back to Subtract 1, 2, or 3* Using Length to Represent Subtraction* Addition and Subtraction Fact Families*
K.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.	Grouping into Tens and Ones Regrouping Tens As Ones*
K.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.	Sorting and Counting
K.G.1 . . . Describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.	Spatial Relationships
K.G.1 Describe objects in the environment using names of shapes, . . .	Identifying Two-Dimensional Shapes
K.G.1 Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.	Identifying Three-Dimensional Shapes

Grade K (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
K.G.2 Correctly name shapes regardless of their orientations or overall size.	Identifying Two-Dimensional Shapes Identifying Three-Dimensional Shapes
K.G.3 Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").	Identifying Two-Dimensional Shapes* Identifying Three-Dimensional Shapes Classifying Plane Shapes by Attributes* Attributes of Three-Dimensional Shapes*
K.G.4 Analyze and compare . . . three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).	Identifying Three-Dimensional Shapes Attributes of Three-Dimensional Shapes
K.G.4 Analyze and compare two- . . . dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).	Identifying Two-Dimensional Shapes Comparing Two-Dimensional Shapes Classifying Plane Shapes by Attributes
K.G.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.	Identifying Two-Dimensional Shapes* Identifying Three-Dimensional Shapes*
K.G.6 Compose simple shapes to form larger shapes.	Decomposing Two-Dimensional Shapes

Grade 1

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
1.OA.1 Use . . . subtraction within 20 to solve word problems involving situations of . . . taking from . . . taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	Subtraction Concepts: Comparison Using Length to Represent Subtraction
1.OA.1 Use . . . subtraction within 20 to solve word problems involving situations of . . . taking from [and] taking apart . . . with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	Subtraction Concepts: Separation Subtraction Concepts: Part-Part-Whole Counting Back to Subtract 1, 2, or 3 Subtraction Facts: Counting Back Subtraction Facts: Counting Up
1.OA.1 Use addition . . . within 20 to solve word problems involving situations of adding to [and] putting together . . . with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	Addition Number Sentences Counting On to Solve Addition Problems Addition Facts Adding Three Numbers
1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	Joining Sets to Add* Counting On to Add* Taking Away to Subtract* Counting Back to Subtract* Acting Out Addition and Subtraction * Using a Number Line to Add and Subtract*

**This lesson is related to the aligned standard*

Grade 1 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Addition Facts for 10* Addition Facts: Doubles* Subtraction in Separation Situations* Subtraction in Part-Part-Whole Situations* Subtraction in Comparison Situations*
1.OA.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	Adding Three Numbers Adding Three or More Numbers
1.OA.3 Apply properties of operations as strategies to add and subtract.	Adding Three Numbers*
1.OA.4 Understand subtraction as an unknown-addend problem.	Addition and Subtraction Fact Families* Subtraction Facts: Counting Up* Relating Addition and Subtraction Facts *
1.OA.5 Relate counting to . . . subtraction . . .	Counting Back to Subtract Counting Back to Subtract 1, 2, or 3 Subtraction Facts: Counting Back Subtraction Facts: Counting Up
1.OA.5 Relate counting to addition . . . (e.g., by counting on 2 to add 2).	Counting On to Add Counting On to Solve Addition Problems
1.OA.5 Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).	Acting Out Addition and Subtraction

**This lesson is related to the aligned standard*

Grade 1 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Using a Number Line to Add and Subtract
1.OA.6 . . . Subtract within 20, demonstrating fluency for . . . subtraction within 10 . . .	Counting Back to Subtract Counting Back to Subtract 1, 2, or 3 Subtraction Facts: Counting Back Subtraction Facts: Counting Up
1.OA.6 Add . . . within 20, demonstrating fluency for addition . . . within 10. Use strategies such as . . . creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).	Addition Facts: Doubles Plus One or Minus One
1.OA.6 Add . . . within 20, demonstrating fluency for addition . . . within 10. Use strategies such as . . . making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14) . . .	Addition Facts: Using Sums of 10
1.OA.6 Add . . . within 20, demonstrating fluency for addition . . . within 10. Use strategies such as counting on . . .	Counting On to Add Counting On to Solve Addition Problems
1.OA.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10 . . .	Acting Out Addition and Subtraction Using a Number Line to Add and Subtract
1.OA.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as . . . using the relationship between addition and subtraction e.g., (knowing that 8 + 4 = 12, one knows 12 - 8 = 4) . . .	Addition and Subtraction Fact Families Relating Addition and Subtraction Facts
1.OA.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 =	Addition Facts: Doubles*

**This lesson is related to the aligned standard*

Grade 1 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 - 4 = 13 - 3 - 1 = 10 - 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 - 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).	
1.OA.7 Understand the meaning of the equal sign . . .	Joining Sets to Add Taking Away to Subtract Counting Back to Subtract
1.OA.8 Determine the unknown whole number in an addition . . . equation relating to three whole numbers.	Addition Facts Addition Facts for 10
1.NBT.1 Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	Numerals and Counting to 10* Counting with One-to-One Correspondence* Counting Objects in a Set* Counting to 20* Counting On* Counting and Ordering to 20* Counting and Ordering to 30* Counting and Ordering to 100* Counting On: 1 to 100*

Grade 1 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Place Value: Hundreds, Tens, and Ones*
1.NBT.2.a 10 can be thought of as a bundle of ten ones - called a "ten."	Grouping into Tens and Ones Counting by 10s* Grouping Objects by 2s or 5s to 100*
1.NBT.2.b The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.	Grouping into Tens and Ones*
1.NBT.2.c The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	Grouping into Tens and Ones* Counting by 10s* Grouping Objects by 2s or 5s to 100*
1.NBT.3 Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	Comparing Numbers to 100 Using Symbols
1.NBT.4 Add within 100 . . . using . . . strategies based on place value . . . Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	Two-Digit Sums and Estimation
1.NBT.4 Add within 100 . . . using concrete models . . . and strategies based on place value . . . Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	Adding Two-Digit Numbers Two-Digit Sums with Base-Ten Models
1.NBT.4 Add within 100, including . . . adding a two-digit number and a multiple of 10, using . . . strategies based on place value . . . Understand that in adding two-digit numbers, one adds tens and tens, ones	Adding a Two-Digit Number and a Multiple of 10

Grade 1 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
and ones; and sometimes it is necessary to compose a ten.	
1.NBT.4 Add within 100, including adding a two-digit number and a one-digit number . . . using . . . strategies based on place value . . . Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	Adding a Two-Digit Number and a One-Digit Number
1.NBT.4 Add within 100, including adding a two-digit number and a one-digit number . . . using . . . strategies based on place value [and] properties of operations . . .	Mental Addition of Two-Digit and One-Digit Numbers
1.NBT.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	Joining Sets to Add* Counting On to Add* Acting Out Addition and Subtraction * Using a Number Line to Add and Subtract* Addition Number Sentences* Counting On to Solve Addition Problems* Addition Facts: Doubles* Adding Three Numbers* Addition and Subtraction Fact Families* Addition Facts: Doubles Plus One or Minus One* Addition Facts: Using Sums of 10*

Grade 1 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Adding Three or More Numbers* Relating Addition and Subtraction Facts *
1.NBT.5 Given a two-digit number, mentally find 10 more . . . than the number, without having to count . . .	Adding a Two-Digit Number and a Multiple of 10
1.NBT.6 Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	Subtracting 10 from a Two-Digit Number* Subtracting Two-Digit Numbers* Subtracting Two-Digit Numbers and Estimating Differences*
1.MD.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.	Measuring Length in Inches with a Ruler*
1.MD.2 Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.	Measuring Length in Inches with a Ruler
1.MD.3 . . . Recognize and identify coins, their names, and their value.	Coin Values
1.MD.3 Tell . . . time in hours and half-hours using analog and digital clocks. . . .	Measuring Time
1.MD.3 Tell and write time in hours and half-hours using analog and digital clocks. Recognize and identify coins, their names, and their value.	Pennies, Nickels, and Dimes* Telling Time to 5 Minutes* Telling Time to 15 Minutes*

**This lesson is related to the aligned standard*

Grade 1 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
1.MD.4 Organize, represent, and interpret data with up to three categories;	Picture Graphs
1.MD.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.	Picture Graphs and Bar Graphs*
1.G.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.	Identifying Two-Dimensional Shapes* Comparing Two-Dimensional Shapes* Identifying Three-Dimensional Shapes* Classifying Plane Shapes by Attributes* Attributes of Three-Dimensional Shapes*
1.G.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) . . . to create a composite shape, and compose new shapes from the composite shape.	Decomposing Two-Dimensional Shapes Concepts of Area in Two-Dimensional Shapes Concepts of Fractions in Two-Dimensional Shapes
1.G.3 Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.	Fraction Concepts: Part of a Whole Fraction of a Whole: Halves and Fourths Fraction of a Set: Halves and Fourths Fractions: Part of a Whole in Real-World Problems* Fraction of a Set: Halves, Thirds, Fourth, Eighths*

**This lesson is related to the aligned standard*

Grade 2

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
2.OA.1 Use . . . subtraction within 100 to solve one- and two-step word problems involving situations of . . . comparing . . . with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	Subtraction in Comparison Situations
2.OA.1 Use . . . subtraction within 100 to solve one- and two-step word problems involving situations of . . . taking from . . . [and] taking apart . . . with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	Subtraction in Separation Situations Subtraction in Part-Part-Whole Situations Subtracting a One-Digit Number from a Two-Digit Number Subtracting Two-Digit Numbers and Estimating Differences Subtracting Two-Digit Numbers
2.OA.1 Use . . . subtraction within 100 to solve one- and two-step word problems involving situations of adding to [and] . . . putting together . . . with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	Subtracting 10 from a Two-Digit Number
2.OA.1 Use addition . . . within 100 to solve one- and two-step word problems involving situations of adding to [and] . . . putting together . . . with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	Adding a Two-Digit Number and a One-Digit Number Adding a Two-Digit Number and a Multiple of 10 Adding Two-Digit Numbers Mental Addition of Two-Digit and One-Digit Numbers

Grade 2 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Two-Digit Sums and Estimation Two-Digit Sums with Base-Ten Models
2.OA.1 Use addition . . . within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	Adding Three or More Numbers
2.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	Addition Number Sentences* Counting On to Solve Addition Problems* Addition Facts* Addition Facts for 10* Addition Facts: Doubles* Adding Three Numbers* Subtraction Concepts: Separation* Subtraction Concepts: Part-Part-Whole * Subtraction Concepts: Comparison* Counting Back to Subtract 1, 2, or 3* Using Length to Represent Subtraction* Addition and Subtraction Fact Families*

**This lesson is related to the aligned standard*

Grade 2 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Addition Facts: Doubles Plus One or Minus One* Addition Facts: Using Sums of 10* Subtraction Facts: Counting Back* Subtraction Facts: Counting Up* Relating Addition and Subtraction Facts * Review Addition and Subtraction Fact Families* Problem Solving and Number Sense*
2.OA.2 Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.	Addition and Subtraction Fact Families Relating Addition and Subtraction Facts Review Addition and Subtraction Fact Families
2.OA.3 Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s . . .	Odd and Even Numbers
2.OA.4 Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.	Multiplication Concepts: Arrays*
2.NBT.1.a 100 can be thought of as a bundle of ten tens - called a "hundred."	Place Value: Hundreds, Tens, and Ones Place Value to 1,000*

**This lesson is related to the aligned standard*

Grade 2 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Place Value and Writing Numbers in Standard Form*
2.NBT.1.b The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).	Place Value: Hundreds, Tens, and Ones* Place Value to 1,000*
2.NBT.2 . . . Skip-count by . . . 10s . . .	Counting by 10s
2.NBT.2 . . . Skip-count by 5s . . .	Counting by 5s
2.NBT.2 . . . Skip-count by 5s, 10s, . . .	Grouping Objects by 2s or 5s to 100
2.NBT.2 Count within 1000; skip-count by 5s, 10s, and 100s.	Counting and Ordering to 100* Counting On: 1 to 100*
2.NBT.3 . . . Write numbers to 1000 using . . . expanded form.	Place Value to 1,000
2.NBT.3 . . . Write numbers to 1000 using base-ten numerals . . . and expanded form.	Place Value: Hundreds, Tens, and Ones
2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	Counting and Ordering to 100* Grouping into Tens and Ones* Number Words 0-120* Place Value and Writing Numbers in Standard Form*
2.NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.	Comparing Numbers to 100 Using Symbols* Comparing and Ordering Three-Digit Numbers Comparing and Ordering Numbers to 1,000

Grade 2 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Comparing and Ordering Numbers to 100,000*
2.NBT.5 Fluently . . . subtract within 100 using strategies based on place value . . .	Subtracting 10 from a Two-Digit Number Subtracting a One-Digit Number from a Two-Digit Number Subtracting Two-Digit Numbers and Estimating Differences Subtracting Two-Digit Numbers
2.NBT.5 Fluently add . . . within 100 using strategies based on place value . . .	Adding a Two-Digit Number and a One-Digit Number Adding a Two-Digit Number and a Multiple of 10 Adding Two-Digit Numbers Mental Addition of Two-Digit and One-Digit Numbers Two-Digit Sums and Estimation Two-Digit Sums with Base-Ten Models
2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	Relating Addition and Subtraction Facts *
2.NBT.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.	Adding a Two-Digit Number and a Multiple of 10 Adding Two-Digit Numbers

**This lesson is related to the aligned standard*

Grade 2 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Two-Digit Sums and Estimation Two-Digit Sums with Base-Ten Models
2.NBT.7 . . . Subtract within 1000, using concrete models or . . . strategies based on place value . . . Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.	Subtracting to Solve Real-World Problems Subtracting Three-Digit Numbers
2.NBT.7 Add . . . within 1000, using concrete models . . . and strategies based on place value . . . Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.	Adding Three-Digit Numbers
2.NBT.7 Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.	Adding a Two-Digit Number and a Multiple of 10* Adding Two-Digit Numbers* Two-Digit Sums and Estimation* Two-Digit Sums with Base-Ten Models*
2.NBT.8 Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.	Adding a Two-Digit Number and a Multiple of 10* Subtracting 10 from a Two-Digit Number*

Grade 2 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
2.NBT.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.	Adding a Two-Digit Number and a One-Digit Number* Adding a Two-Digit Number and a Multiple of 10* Adding Two-Digit Numbers* Subtracting 10 from a Two-Digit Number* Mental Addition of Two-Digit and One-Digit Numbers* Two-Digit Sums and Estimation* Two-Digit Sums with Base-Ten Models* Subtracting a One-Digit Number from a Two-Digit Number* Subtracting Two-Digit Numbers and Estimating Differences* Subtracting Two-Digit Numbers* Adding Three-Digit Numbers* Subtracting Three-Digit Numbers*
2.MD.1 Measure the length of an object by . . . using appropriate tools such as rulers . . .	Measuring Length in Inches with a Ruler Using a Ruler: Inches Using a Ruler: Centimeters
2.MD.2 Measure the length of an object twice, using length units of different lengths	Using a Ruler: Inches*

Grade 2 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
for the two measurements; describe how the two measurements relate to the size of the unit chosen.	Using a Ruler: Centimeters*
2.MD.3 Estimate lengths using units of inches, feet, centimeters, and meters.	Estimating Length*
2.MD.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.	Measuring Length in Inches with a Ruler* Using a Ruler: Inches* Using a Ruler: Centimeters*
2.MD.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.	Using a Ruler: Inches*
2.MD.6 . . . Represent whole-number sums . . . within 100 on a number line diagram.	Adding a Two-Digit Number and a One-Digit Number
2.MD.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2,..., and represent whole-number sums and differences within 100 on a number line diagram.	Counting Back to Subtract 1, 2, or 3*
2.MD.7 Tell . . . time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	Telling Time to 5 Minutes
2.MD.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	Measuring Time* Telling Time to 15 Minutes* Telling Time to the Minute*
2.MD.8 Solve word problems involving dollar bills, quarters, dimes, nickels,	Coin Values

Grade 2 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
and pennies, using $ and ¢ symbols appropriately.	Counting Coin Values Money Problems: Addition and Subtraction* Money Problems: Addition, Subtraction, Multiplication* Decimal Notation Using Money* Comparing and Ordering Decimal Numbers*
2.MD.9 Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.	Measuring Length in Inches with a Ruler* Using a Ruler: Inches* Using a Ruler: Centimeters* Line Plots*
2.MD.10 Draw a picture graph . . . to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.	Picture Graphs
2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. . . .	Scaled Pictographs and Bar Graphs
2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.	Picture Graphs and Bar Graphs
2.G.1 . . . Identify triangles, quadrilaterals, pentagons, hexagons, . . .	Classifying Polygons

**This lesson is related to the aligned standard*

Grade 2 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
2.G.1 Recognize . . . shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.	Classifying Plane Shapes by Attributes
2.G.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.	Attributes of Three-Dimensional Shapes* Quadrilaterals* Classifying Triangles*
2.G.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	Concepts of Area in Two-Dimensional Shapes*
2.G.3 Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	Fraction of a Whole: Halves and Fourths* Fraction of a Set: Halves and Fourths* Concepts of Fractions in Two-Dimensional Shapes Fractions: Part of a Whole in Real-World Problems Fraction of a Set: Halves, Thirds, Fourth, Eighths Fraction of a Whole: Denominators Through 12*

Grade 3

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
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.	Multiplication Concepts: Equal Groups Multiplication Sentences and Equal Groups Understand Multiplication, Part 1 Multiplication Concepts: Arrays Multiplication Fact Review
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.	Division Concepts: Sharing Equal Groups Understand Division, Part 1 Understand Division, Part 2
3.OA.3 Use . . . division within 100 to solve word problems in situations involving equal groups . . . e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	Division Concepts: Sharing Equal Groups Understand Division, Part 1 Relating Division to Multiplication
3.OA.3 Use multiplication . . . within 100 to solve word problems in situations involving . . . arrays . . . e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	Multiplication Concepts: Arrays
3.OA.3 Use multiplication . . . within 100 to solve word problems in situations involving equal groups, . . . e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	Multiplication Concepts: Skip Counting Using Area for Multiplication: Facts for 3, 4, and 5 Using Area for Multiplication: Facts for 6, 7, and 8

Grade 3 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Division Concepts: Area and Facts for 3, 4, and 5 Division Concepts: Area and Facts for 6, 7, and 8
3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups . . . e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	Multiplication and Division Fact Families
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.	Multiply Multiples of 10 * Multiplying Two-Digit Numbers by One-Digit Numbers* Multiplying by Powers of Ten and Multiples of Ten* Review Multiplying Two-Digit Numbers by One-Digit Numbers* Using Partial Products to Multiply* Dividing Whole Numbers*
3.OA.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.	Understand Division, Part 1* Equations and Numerical Relationships
3.OA.5 Apply properties of operations as strategies to multiply . . .	Using Area for Multiplication: Facts for 6, 7, and 8 Properties of Multiplication
3.OA.6 Understand division as an unknown-factor problem.	Multiplication and Division Fact Families*

Grade 3 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Using Fact Families to Solve Division Problems*
3.OA.7 Fluently . . . 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) . . .	Understand Division, Part 1 Relating Division to Multiplication
3.OA.7 Fluently multiply . . . within 100 . . . By the end of Grade 3, know from memory all products of two one-digit numbers.	Multiplication Fact Review
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. By the end of Grade 3, know from memory all products of two one-digit numbers.	Multiplication Concepts: Skip Counting Using Area for Multiplication: Facts for 3, 4, and 5 Using Area for Multiplication: Facts for 6, 7, and 8 Division Concepts: Area and Facts for 3, 4, and 5 Multiplying Two-Digit Numbers by One-Digit Numbers* Division Concepts: Area and Facts for 6, 7, and 8 Review Multiplying Two-Digit Numbers by One-Digit Numbers* Dividing Whole Numbers*
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 ÷	Multiplication and Division Fact Families

**This lesson is related to the aligned standard*

Grade 3 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
5 = 8) . . . By the end of Grade 3, know from memory all products of two one-digit numbers.	
3.OA.8 Solve two-step word problems using the four operations. . . .	Money Problems: Addition, Subtraction, Multiplication
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 answers using mental computation and estimation strategies including rounding.	Two-Digit Sums and Estimation* Two-Digit Sums with Base-Ten Models* Subtracting Two-Digit Numbers and Estimating Differences* Subtracting to Solve Real-World Problems* Adding Three-Digit Numbers* Subtracting Three-Digit Numbers*
3.OA.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.	Describing and Extending Patterns*
3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.	Use Place Value to Round Numbers Adding Three-Digit Numbers* Rounding to the Nearest 10, 100, or 1,000* Subtracting Multi-Digit Numbers *
3.NBT.2 Fluently . . . subtract within 1000 using strategies and algorithms based on place value . . .	Subtracting Three-Digit Numbers
3.NBT.2 Fluently . . . subtract within 1000 using strategies and algorithms based on place value . . . and/or the relationship between addition and subtraction.	Subtracting to Solve Real-World Problems

Grade 3 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
3.NBT.2 Fluently add . . . within 1000 using strategies and algorithms based on place value . . .	Adding Three-Digit Numbers
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.	Addition Facts: Doubles Plus One or Minus One* Addition Facts: Using Sums of 10* Adding Three or More Numbers* Mental Addition of Two-Digit and One-Digit Numbers* Two-Digit Sums and Estimation* Two-Digit Sums with Base-Ten Models* Subtracting a One-Digit Number from a Two-Digit Number* Subtracting Two-Digit Numbers and Estimating Differences* Subtracting Two-Digit Numbers* Money Problems: Addition and Subtraction* Money Problems: Addition, Subtraction, Multiplication* Adding Multi-Digit Numbers* Subtracting Multi-Digit Numbers *

Grade 3 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
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.	Multiply Multiples of 10 Multiplying by Powers of Ten and Multiples of Ten
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.	Fractions: Part of a Whole in Real-World Problems Understand What a Fraction Is* Fraction of a Whole: Denominators Through 12
3.NF.2.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.	Understand Fractions on a Number Line Comparing and Ordering Two Unlike Fractions* Comparing and Ordering Three Unlike Fractions* Using Models to Compare Fractions*
3.NF.2.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.	Understand Fractions on a Number Line Comparing and Ordering Two Unlike Fractions* Comparing and Ordering Three Unlike Fractions* Using Models to Compare Fractions*
3.NF.3.a Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.	Equivalent Fractions Equivalent Fractions and Simplest Form

Grade 3 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
3.NF.3.b Recognize and generate simple equivalent fractions, (e.g., 1/2 = 2/4, 4/6 = 2/3) . . .	Equivalent Fractions
3.NF.3.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.	Equivalent Fractions and Simplest Form
3.NF.3.c . . . Recognize fractions that are equivalent to whole numbers.	Mixed Numbers and Fractions Greater Than 1
3.NF.3.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.	Fractions: Part of a Whole in Real-World Problems* Comparing and Ordering Two Unlike Fractions* Comparing and Ordering Three Unlike Fractions* Using Models to Compare Fractions*
3.MD.1 . . . Measure time intervals in minutes. . .	Elapsed Time to the Minute
3.MD.1 Tell . . . time to the nearest minute . . .	Telling Time to the Minute
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.	Elapsed Time* Telling Time to 5 Minutes* Telling Time to 15 Minutes* Estimating Time: Choosing Units* Estimating Time: Minutes *

Grade 3 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Finding Elapsed Time to Solve Problems*
3.MD.2 . . . Estimate liquid volumes . . . using standard units of . . . liters (l) . . .	Estimating Capacity: Millileters and Liters
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.	Measuring Weight with a Scale* Liters and Milliliters* Using a Balance Scale: Pounds* Comparing Weight in Pounds* Grams and Kilograms* Estimating Capacity: Metric Units*
3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. . . .	Scaled Pictographs and Bar Graphs
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.	Picture Graphs and Bar Graphs Interpreting Bar Graphs and Pictographs
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.	Using a Ruler: Inches* Using a Ruler: Centimeters or Inches* Interpreting Line Plots
3.MD.5.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.	Concepts of Area in Two-Dimensional Shapes* Understanding Area and Surface Area

Grade 3 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
3.MD.5.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.	Understanding Area and Surface Area
3.MD.6 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	Concepts of Area in Two-Dimensional Shapes* Understanding Area and Surface Area
3.MD.7.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.	Concepts of Area in Two-Dimensional Shapes* Understanding Area and Surface Area
3.MD.7.b . . . Represent whole-number products as rectangular areas in mathematical reasoning.	Using Area for Multiplication: Facts for 3, 4, and 5 Using Area for Multiplication: Facts for 6, 7, and 8 Multiplication Fact Review
3.MD.7.b Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems . . .	Understanding Area and Surface Area
3.MD.7.c . . . Use area models to represent the distributive property in mathematical reasoning.	Using Area for Multiplication: Facts for 6, 7, and 8
3.MD.7.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.	Concepts of Area in Two-Dimensional Shapes
3.MD.8 Solve real world and mathematical problems involving perimeters of polygons,	Understanding Perimeter

Grade 3 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
including finding the perimeter given the side lengths . . .	
3.G.1 . . . Recognize rhombuses, rectangles, and squares as examples of quadrilaterals . . .	Quadrilaterals
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). . . .	Classifying Polygons
3.G.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.	Concepts of Fractions in Two-Dimensional Shapes* Fractions: Part of a Whole in Real-World Problems* Fraction of a Whole: Denominators Through 12*

Grade 4

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
4.OA.1 Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	Understand Multiplication, Part 1* Multiplication Concepts: Arrays* Using Area for Multiplication: Facts for 3, 4, and 5*
4.OA.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	Relating Division to Multiplication* Multiplication Fact Review* Dividing Whole Numbers* Multiplying by Two-Digit Numbers* Four-Digit Dividends*
4.OA.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 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.	Subtracting to Solve Real-World Problems* Problem Solving and Number Sense* Using Area for Multiplication: Facts for 3, 4, and 5* Adding Three-Digit Numbers* Understand Division, Part 1* Subtracting Three-Digit Numbers* Multiplying Two-Digit Numbers by One-Digit Numbers* Division Concepts: Area and Facts for 3, 4, and 5*

Grade 4 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Division Concepts: Area and Facts for 6, 7, and 8* Relating Division to Multiplication* Money Problems: Addition, Subtraction, Multiplication Equations and Numerical Relationships* Adding Multi-Digit Numbers* Subtracting Multi-Digit Numbers * Using Partial Products to Multiply* Dividing Whole Numbers* Multiplying by Two-Digit Numbers* Four-Digit Dividends*
4.OA.4 . . . Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. . . .	Finding Multiples
4.OA.4 . . . Determine whether a given whole number in the range 1-100 is prime or composite.	Prime and Composite Numbers
4.OA.4 Find all factor pairs for a whole number in the range 1-100. . . .	Identifying Factors Finding Factors
4.OA.4 Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a	Identifying Multiples* Prime Factorization*

Grade 4 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.	Finding the Greatest Common Factor*
4.OA.5 Generate a number . . . pattern that follows a given rule. . . .	Describing Numerical Relationships Using a Function Table Applying a Function Rule to Complete a Table
4.NBT.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.	Place Value to 1,000 Place Value and Writing Numbers in Standard Form Understand Place Value* Place Value to 1,000,000 and More*
4.NBT.2 . . . Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	Comparing and Ordering Numbers to 1,000 Comparing and Ordering Numbers to 100,000 Compare and Order Whole Numbers Using Number Lines
4.NBT.2 . . . Write multi-digit whole numbers using base-ten numerals . . . and expanded form. . . .	Place Value to 1,000,000 and More
4.NBT.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	Understand Place Value*

Grade 4 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place.	Use Place Value to Round Numbers* Rounding to the Nearest 10, 100, or 1,000
4.NBT.4 Fluently . . . subtract multi-digit whole numbers using the standard algorithm.	Subtracting Multi-Digit Numbers
4.NBT.4 Fluently add . . . multi-digit whole numbers using the standard algorithm.	Adding Multi-Digit Numbers
4.NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.	Subtracting to Solve Real-World Problems* Adding Three-Digit Numbers* Subtracting Three-Digit Numbers*
4.NBT.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Multiply Multiples of 10 * Multiplying Two-Digit Numbers by One-Digit Numbers Multiplying by Powers of Ten and Multiples of Ten* Review Multiplying Two-Digit Numbers by One-Digit Numbers Using Partial Products to Multiply* Multiplying by Two-Digit Numbers
4.NBT.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Relating Division to Multiplication Dividing Whole Numbers Four-Digit Dividends*

**This lesson is related to the aligned standard*

Grade 4 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
4.NF.1 Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	Equivalent Fractions Equivalent Fractions and Simplest Form
4.NF.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	Comparing and Ordering Two Unlike Fractions Comparing and Ordering Three Unlike Fractions Using Models to Compare Fractions Understand Adding and Subtracting Fractions* Finding the Least Common Denominator
4.NF.3.a Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	Understand Adding and Subtracting Fractions Adding and Subtracting Unlike Fractions*
4.NF.3.b Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.	Understand Adding and Subtracting Fractions
4.NF.3.c Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	Understand Adding and Subtracting Fractions Mixed Numbers and Fractions Greater Than 1*

**This lesson is related to the aligned standard*

Grade 4 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Rewriting Mixed Numbers and Fractions Greater than 1*
4.NF.3.d Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	Understand Adding and Subtracting Fractions*
4.NF.4.a Understand a fraction a/b as a multiple of 1/b.	Multiplying a Whole Number and a Fraction*
4.NF.4.b Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number.	Understand Fraction Multiplication* Multiplying a Whole Number and a Fraction*
4.NF.4.c Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.	Understand Fraction Multiplication* Multiplying a Whole Number and a Fraction
4.NF.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.	Equivalent Fractions* Equivalent Fractions and Simplest Form* Adding and Subtracting Unlike Fractions*
4.NF.6 Use decimal notation for fractions with denominators 10 or 100.	Renaming Fractions As Decimals*
4.NF.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.	Comparing and Ordering Decimal Numbers Compare and Order Decimal Numbers with Number Lines

Grade 4 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
4.MD.1 . . . Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. . . .	Converting Customary Units of Length Converting Metric Units of Length
4.MD.1 Know relative sizes of measurement units within one system of units . . .	Review Estimating Length: Customary Units
4.MD.1 Know relative sizes of measurement units within one system of units including . . . kg, g . . . Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit . . .	Converting Units of Mass to Compare
4.MD.1 Know relative sizes of measurement units within one system of units including . . . kg, g . . .	Grams and Kilograms
4.MD.1 Know relative sizes of measurement units within one system of units including . . . lb, oz . . .	Ounces, Pounds, and Tons
4.MD.1 Know relative sizes of measurement units within one system of units including . . . lb, oz . . . Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit . . .	Converting Customary Units of Weight to Compare
4.MD.1 Know relative sizes of measurement units within one system of units including km, m, cm . . .	Estimating Length: Metric Units
4.MD.1 Know relative sizes of measurement units within one system of units including km, m, cm . . . Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit . . .	Converting Metric Units of Length to Compare
4.MD.1 Know relative sizes of measurement units within one system of	Estimating Length: Customary Units

Grade 4 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.	Estimating Capacity: Customary Units Estimating Capacity: Metric Units Converting Customary Units of Length to Compare Converting Customary Units of Capacity to Compare Converting Metric Units of Capacity to Compare
4.MD.2 . . . Solve . . . problems that require expressing measurements given in a larger unit in terms of a smaller unit . . .	Converting Customary Units of Length Converting Metric Units of Length Converting Customary Units of Length to Compare Converting Customary Units of Weight to Compare Converting Metric Units of Length to Compare Converting Customary Units of Capacity to Compare Converting Metric Units of Capacity to Compare Converting Units of Mass to Compare
4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses	Elapsed Time to the Minute Money Problems: Addition and Subtraction

Grade 4 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	Money Problems: Addition, Subtraction, Multiplication Finding Elapsed Time to Solve Problems Adding and Subtracting Decimals With Money Making Change Adding and Subtracting Decimals Multiplying Decimal Numbers Dividing Decimals
4.MD.3 Apply the area . . . formula for rectangles in real world and mathematical problems.	Understanding Area and Surface Area
4.MD.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.	Understanding Perimeter*
4.MD.4 Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots.	Line Plots* Interpreting Line Plots*
4.MD.5.a An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.	Using a Protractor

**This lesson is related to the aligned standard*

Grade 4 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
4.MD.5.b An angle that turns through n one-degree angles is said to have an angle measure of n degrees.	Using a Protractor
4.MD.6 Measure angles in whole-number degrees using a protractor. . . .	Using a Protractor
4.MD.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	Angle Measurements*
4.G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	Lines and Angles* Classifying Angles * Angle Measurements*
4.G.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	Classifying Polygons Quadrilaterals Classifying Triangles
4.G.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	Line Symmetry

Grade 5

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
5.OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	Numerical Expressions and Order of Operations Algebraic Expressions
5.OA.2 Write simple expressions that record calculations with numbers . . .	Numerical Expressions and Order of Operations
5.OA.3 Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.	Using a Function Table* Plotting Ordered Pairs* Review Plotting Ordered Pairs* Applying a Function Rule to Complete a Table* Coordinate Plane and Absolute Value*
5.NBT.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.	Place Value to 1,000,000 and More* Renaming Fractions As Decimals*
5.NBT.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	Multiplying by Powers of Ten and Multiples of Ten* Multiplication and Division of Decimals by Positive Powers of Ten*
5.NBT.3.a Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.	Renaming Fractions As Decimals*
5.NBT.3.b Compare two decimals to thousandths based on meanings of the digits	Compare and Order Decimal Numbers with Number Lines*

Grade 5 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
in each place, using >, =, and < symbols to record the results of comparisons.	
5.NBT.4 Use place value understanding to round decimals to any place.	Adding and Subtracting Decimals With Money* Adding and Subtracting Decimals* Multiplying Decimal Numbers* Multiplying Decimal Numbers to Solve Problems* Dividing Decimals* Multiplication of Decimals*
5.NBT.5 Fluently multiply multi-digit whole numbers using the standard algorithm.	Multiplying by Powers of Ten and Multiples of Ten* Using Partial Products to Multiply* Multiplying by Two-Digit Numbers
5.NBT.6 Find whole-number quotients of whole numbers with . . . four-digit dividends and two-digit divisors, using strategies based on place value . . . and . . . the relationship between multiplication and division . . .	Division of Whole Numbers
5.NBT.6 Find whole-number quotients of whole numbers with . . . four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division . . .	Four-Digit Dividends

Grade 5 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
5.NBT.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Dividing Whole Numbers* Multiplication and Division of Decimals by Positive Powers of Ten*
5.NBT.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	Adding and Subtracting Decimals Multiplying Decimal Numbers Dividing Decimals
5.NF.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.	Understand Adding and Subtracting Fractions* Adding and Subtracting Unlike Fractions
5.NF.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem . . .	Adding and Subtracting Unlike Fractions
5.NF.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.	Finding the Least Common Denominator*

Grade 5 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
5.NF.3 Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	Renaming Fractions As Decimals*
5.NF.4.a Interpret the product (a/b) × q as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations a × q ÷ b.	Multiplying a Whole Number and a Fraction* Multiplying Fractions*
5.NF.4.b . . . Represent fraction products as rectangular areas.	Multiplying a Whole Number and a Fraction
5.NF.4.b Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	Understanding Area and Surface Area* Multiplication Fact Review* Multiplying Fractions* Concepts of Area and Perimeter*
5.NF.5.a Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.	Multiplying a Whole Number and a Fraction* Multiplying Fractions*
5.NF.5.b Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence a/b = (n×a)/(n×b) to the effect of multiplying a/b by 1.	Multiplying a Whole Number and a Fraction* Multiplying Fractions*

Grade 5 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
5.NF.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	Equivalent Fractions and Simplest Form* Multiplying a Whole Number and a Fraction Multiplying Fractions
5.NF.7.a Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.	Dividing Fractions* Division of Fractions*
5.NF.7.b Interpret division of a whole number by a unit fraction, and compute such quotients.	Dividing Fractions* Division of Fractions*
5.NF.7.c Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.	Dividing Fractions* Division of Fractions*
5.MD.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m) . . .	Converting Customary Units of Length Converting Metric Units of Length Converting Customary Units of Length to Compare Converting Customary Units of Weight to Compare Converting Metric Units of Length to Compare Converting Customary Units of Capacity to Compare

Grade 5 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Converting Metric Units of Capacity to Compare Converting Units of Mass to Compare
5.MD.2 Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots.	Interpreting Line Plots
5.MD.3.a A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.	Understanding Volume* Review Volume*
5.MD.3.b A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.	Understanding Volume* Review Volume*
5.MD.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	Understanding Volume* Review Volume*
5.MD.5.a Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.	Understanding Volume* Review Volume* Volume with Fractional Length*
5.MD.5.b Apply the formulas V = l × w × h and V = b × h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context	Understanding Volume Review Volume Volume with Fractional Length*

Grade 5 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
of solving real world and mathematical problems.	
5.MD.5.c Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	Understanding Volume* Review Volume* Volume with Fractional Length*
5.G.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).	Plotting Ordered Pairs Review Plotting Ordered Pairs Polygons in the Coordinate Plane*
5.G.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	Plotting Ordered Pairs* Review Plotting Ordered Pairs* Polygons in the Coordinate Plane*
5.G.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	Quadrilaterals Classifying Triangles
5.G.4 Classify two-dimensional figures in a hierarchy based on properties.	Classifying Polygons Quadrilaterals

Grade 5 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Classifying Triangles

Grade 6

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
6.RP.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.	Ratio Concepts Concept of Ratio
6.RP.2 Understand the concept of a unit rate a/b associated with a ratio a:b with b is not equal to 0, and use rate language in the context of a ratio relationship.	Concept of Rate
6.RP.3.a Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.	Ratio Concepts* Concept of Ratio*
6.RP.3.b Solve unit rate problems including those involving unit pricing and constant speed.	Concept of Rate
6.RP.3.c . . . Solve problems involving finding the whole, given a part and the percent.	Concept of Percent
6.RP.3.c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity) . . .	Estimating and Calculating Percents
6.RP.3.c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.	Percent Concepts* Problem Solving with Ratio and Percent
6.RP.3.d Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	Converting Customary Units of Length to Compare Converting Customary Units of Weight to Compare Converting Metric Units of Length to Compare

**This lesson is related to the aligned standard*

Grade 6 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Converting Customary Units of Capacity to Compare Converting Metric Units of Capacity to Compare
6.NS.1 . . . Compute quotients of fractions . . .	Dividing Fractions
6.NS.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.	Division of Fractions
6.NS.2 Fluently divide multi-digit numbers using the standard algorithm.	Four-Digit Dividends Division of Whole Numbers*
6.NS.3 Fluently . . . divide multi-digit decimals using the standard algorithm for each operation.	Division of Whole Numbers and Decimals Division of Decimals
6.NS.3 Fluently . . . multiply . . . multi-digit decimals using the standard algorithm for each operation.	Multiplication of Decimals
6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	Adding and Subtracting Decimals in Word Problems* Adding and Subtracting Decimals* Multiplying Decimal Numbers* Multiplying Decimal Numbers to Solve Problems* Dividing Decimals*

Grade 6 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
6.NS.4 Find the greatest common factor of two whole numbers less than or equal to 100 . . .	Finding the Greatest Common Factor
6.NS.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12 . . .	Prime Factors
6.NS.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge) . . .	Rational Numbers and Absolute Value
6.NS.6.a Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line . . .	Rational Numbers and Absolute Value
6.NS.6.b Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.	Plotting Ordered Pairs* Review Plotting Ordered Pairs* Coordinate Plane and Absolute Value*
6.NS.6.c . . . Find and position pairs of integers and other rational numbers on a coordinate plane.	Plotting Ordered Pairs Review Plotting Ordered Pairs Coordinate Plane and Absolute Value
6.NS.6.c Find and position integers and other rational numbers on a horizontal or vertical number line diagram . . .	Rational Numbers and Absolute Value
6.NS.7.a Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.	Rational Numbers and Absolute Value*

**This lesson is related to the aligned standard*

Grade 6 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
6.NS.7.b Write, interpret, and explain statements of order for rational numbers in real-world contexts.	Rational Numbers and Absolute Value*
6.NS.7.c Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.	Rational Numbers and Absolute Value
6.NS.7.d Distinguish comparisons of absolute value from statements about order.	Rational Numbers and Absolute Value*
6.NS.8 Solve . . . mathematical problems by graphing points in all four quadrants of the coordinate plane. . .	Plotting Ordered Pairs Review Plotting Ordered Pairs
6.NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	Coordinate Plane and Absolute Value
6.EE.1 Write and evaluate numerical expressions involving whole-number exponents.	Numerical Expressions and Order of Operations
6.EE.2.a Write expressions that record operations with numbers and with letters standing for numbers.	Algebraic Expressions
6.EE.2.b Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.	Algebraic Expressions*
6.EE.2.c Evaluate expressions at specific values of their variables . . . Perform arithmetic operations, including those involving whole-number exponents, in	Algebraic Expressions

Grade 6 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
the conventional order when there are no parentheses to specify a particular order (Order of Operations).	
6.EE.3 Apply the properties of operations to generate equivalent expressions.	Equivalent Expressions
6.EE.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).	Equivalent Expressions
6.EE.5 . . . Use substitution to determine whether a given number in a specified set makes an . . . inequality true.	Solving Inequalities
6.EE.5 . . . Use substitution to determine whether a given number in a specified set makes an equation . . . true.	Solving Equations
6.EE.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	Using Equations to Solve Problems*
6.EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	Algebraic Expressions
6.EE.7 Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q and x are all nonnegative rational numbers.	Using Equations to Solve Problems
6.EE.8 Write an inequality of the form x > c or x < c to represent a constraint or	Solving Inequalities

Grade 6 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
condition in a real-world or mathematical problem. Recognize that inequalities of the form x > c or x < c have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	
6.EE.9 . . . Analyze the relationship between the dependent and independent variables using . . . tables, and relate these to the equation.	Applying a Function Rule to Complete a Table
6.EE.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	Writing Function Rules Relationships Between Variables in Equations
6.G.1 Find the area of right triangles . . .	Concepts of Area and Perimeter
6.G.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	Area of Parallelograms, Quadrilaterals, and Polygons
6.G.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context	Volume with Fractional Length

Grade 6 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
of solving real-world and mathematical problems.	
6.G.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	Plotting Ordered Pairs* Review Plotting Ordered Pairs* Polygons in the Coordinate Plane
6.G.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	Nets and Surface Area
6.G.4 Represent three-dimensional figures using nets made up of rectangles and triangles. . .	Nets
6.SP.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.	Measure of Center and Spread*
6.SP.2 Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.	Measure of Center and Spread*
6.SP.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	Measure of Center and Spread*
6.SP.4 Display numerical data in plots on a number line, including . . . histograms . . .	Histograms
6.SP.4 Display numerical data in plots on a number line, including . . . box plots.	Box Plots

Grade 6 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
6.SP.4 Display numerical data in plots on a number line, including dot plots . . .	Dot Plots
6.SP.5.c Giving quantitative measures of center (median and/or mean) . . .	Measure of Center and Spread
6.SP.5.d Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	Measure of Center and Spread*

Grade 7

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
7.RP.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	Concept of Rate Ratios involving Complex Fractions
7.RP.2.a Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.	Recognizing Proportional Relationships Representing Proportional Relationships*
7.RP.2.b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	Recognizing Proportional Relationships Representing Proportional Relationships*
7.RP.2.c Represent proportional relationships by equations.	Equations for Proportional Relationships
7.RP.2.d Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.	Equations for Proportional Relationships
7.RP.3 Use proportional relationships to solve multistep ratio and percent problems.	Problem Solving with Proportional Relationships
7.NS.1.a Describe situations in which opposite quantities combine to make 0.	Rational Numbers and Absolute Value*
7.NS.1.b Understand p + q as the number located a distance |q| from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.	Coordinate Plane and Absolute Value*
7.NS.1.c Understand subtraction of rational numbers as adding the additive inverse, p -	Coordinate Plane and Absolute Value*

Grade 7 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
q = p + (-q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.	
7.NS.1.d Apply properties of operations as strategies to add and subtract rational numbers.	Addition and Subtraction of Rational Numbers
7.NS.2.a Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.	Multiplication and Division of Positive and Negative Integers* Multiplication and Division of Rational Numbers*
7.NS.2.b Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then -(p/q) = (-p)/q = p/(-q). Interpret quotients of rational numbers by describing real-world contexts.	Multiplication and Division of Positive and Negative Integers* Multiplication and Division of Rational Numbers*
7.NS.2.c Apply properties of operations as strategies to multiply and divide rational numbers.	Multiplication and Division of Positive and Negative Integers* Multiplication and Division of Rational Numbers
7.NS.2.d Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	Expressing Fractions as Decimals
7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.	Addition and Subtraction of Rational Numbers*

Grade 7 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Multiplication and Division of Rational Numbers*
7.EE.1 Apply properties of operations as strategies to . . . factor . . . and expand linear expressions with rational coefficients.	Linear Expressions
7.EE.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	Equivalent Expressions
7.EE.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.	Problem Solving with Rational Numbers
7.EE.4.a Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.	Using Equations to Solve Problems
7.EE.4.b Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.	Problem Solving with Inequalities
7.G.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from	Scale Drawings

**This lesson is related to the aligned standard*

Grade 7 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
a scale drawing and reproducing a scale drawing at a different scale.	
7.G.2 Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.	Polygons in the Coordinate Plane* Construction of Triangles
7.G.3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	Cross-sections of Prism and Pyramids
7.G.4 Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	Area and Circumference of a Circle
7.G.5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	Problem Solving with Angles
7.G.6 Solve real-world and mathematical problems involving . . . surface area of . . . three-dimensional objects composed of . . . cubes and right prisms.	Surface Area of Composed Figures
7.G.6 Solve real-world and mathematical problems involving . . . volume . . . of . . . three-dimensional objects composed of . . . cubes and right prisms.	Volume of Composed Figures
7.G.6 Solve real-world and mathematical problems involving area . . . of two- . . . dimensional objects composed of triangles, quadrilaterals [and] polygons . . .	Area of Composed Figures

**This lesson is related to the aligned standard*

Grade 7 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
7.SP.1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.	Random Samples Making Statistical Inferences
7.SP.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.	Making Statistical Inferences*
7.SP.3 Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.	Using Mean and Mean Absolute Deviation to Compare Data* Using Measures of Center and Variability to Compare Data*
7.SP.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.	Measure of Center and Spread Using Mean and Mean Absolute Deviation to Compare Data* Using Measures of Center and Variability to Compare Data*
7.SP.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely	Probability Concepts

Grade 7 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
nor likely, and a probability near 1 indicates a likely event.	
7.SP.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.	Experimental Probability
7.SP.7.a Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.	Probability Models
7.SP.7.b Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.	Experimental Probability
7.SP.8.a Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.	Probability of Compound Events*
7.SP.8.b Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.	Probability of Compound Events
7.SP.8.c Design and use a simulation to generate frequencies for compound events.	Simulations of Compound Events

Grade 8

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
8.NS.1 Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.	Expressing Fractions as Decimals* Rational and Irrational Numbers
8.NS.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., pi^2).	Rational and Irrational Numbers Approximating Irrational Numbers
8.EE.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions.	Properties of Integer Exponents
8.EE.2 Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that the square root of 2 is irrational.	Square Roots and Cube Roots
8.EE.3 Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.	Scientific Notation
8.EE.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.	Representing Proportional Relationships
8.EE.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y =	Linear Functions* Linear Equations and Slope

Grade 8 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.	
8.EE.7.a Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).	Solving Linear Equations
8.EE.7.b Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	Solving Linear Equations with Rational Coefficients
8.EE.8.a Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.	Systems of Linear Equations Solving Systems of Linear Equations Algebraically*
8.EE.8.b Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.	Systems of Linear Equations Solving Systems of Linear Equations Algebraically
8.F.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.	Concept of a Function
8.F.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	Linear Functions, Rate of Change and Initial Value Properties of Functions

Grade 8 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
	Using a Graph to Analyze a Functional Relationship
8.F.3 Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.	Linear Functions
8.F.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	Linear Functions, Rate of Change and Initial Value
8.F.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	Using a Graph to Analyze a Functional Relationship
8.G.1.a Verify experimentally the properties of rotations, reflections, and translations: Lines are taken to lines, and line segments to line segments of the same length.	Properties of Translations and Reflections Properties of Rotations
8.G.1.b Verify experimentally the properties of rotations, reflections, and translations: Angles are taken to angles of the same measure.	Properties of Translations and Reflections Properties of Rotations
8.G.1.c Verify experimentally the properties of rotations, reflections, and translations: Parallel lines are taken to parallel lines.	Properties of Translations and Reflections Properties of Rotations

Grade 8 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
8.G.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.	Properties of Translations and Reflections Properties of Rotations
8.G.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	Properties of Translations and Reflections Properties of Rotations
8.G.4 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	Properties of Dilations
8.G.5 Use informal arguments to establish facts about . . . the angles created when parallel lines are cut by a transversal . . .	Geometric Properties involving Angles
8.G.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles . . .	Angle Sums Properties
8.G.6 Explain a proof of the Pythagorean Theorem and its converse.	The Pythagorean Theorem
8.G.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	The Pythagorean Theorem
8.G.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	Applications of the Pythagorean Theorem
8.G.9 Know the formulas for the volumes of cones, cylinders, and spheres and use	Volume of Cylinders, Cones, and Spheres.

Grade 8 (continued)

New York State Common Core Learning Standards for Mathematics	Aligned Lessons
them to solve real-world and mathematical problems.	
8.SP.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	Scatter Plots
8.SP.2 Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	Linear Models
8.SP.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.	Problem Solving with Linear Models