i-Ready® Classroom Mathematics

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to the

New York State Next Generation Mathematics Learning Standards

Kindergarten

New York State Next Generation Mathematics Learning Standards Kindergarten	i-Ready Classroom Mathematics Lessons Kindergarten
Kindergarten	
K.CC	**Counting and Cardinality**
Know number names and the count sequence.	
K.CC.1 Count to 100 by ones and by tens.	**Lesson 17:** Count Within 100 **Supporting Content:** Lesson 4: Count, Show, and Write Numbers to 5; Lesson 11: Count, Show, and Write Numbers 6 to 10; Lesson 16: Count, Read, and Write Numbers 11 to 20
K.CC.2 Count to 100 by ones beginning from any given number (instead of beginning at 1).	**Lesson 17:** Count Within 100 **Supporting Content:** Lesson 4: Count, Show, and Write Numbers to 5; Lesson 11: Count, Show, and Write Numbers 6 to 10; Lesson 16: Count, Read, and Write Numbers 11 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).	**Lesson 4:** Count, Show, and Write Numbers to 5 **Lesson 11:** Count, Show, and Write Numbers 6 to 10 **Lesson 16:** Count, Read, and Write Numbers 11 to 20 **Supporting Content:** Lesson 5: Compare Numbers to 5; Lesson 7: Add Within 5; Lesson 9: Subtract Within 5; Lesson 10: Add and Subtract Within 5; Lesson 12: Compare Numbers to 10; Lesson 14: Compose and Decompose 10; Lesson 18: Compose and Decompose 6 and 7; Lesson 19: Compose and Decompose 8 and 9; Lesson 20: Add Within 10; Lesson 21: Subtract Within 10; Lesson 22: Add and Subtract to Solve Word Problems; Lesson 23: Compose and Decompose Teen Numbers with Tools and Drawings; Lesson 25: Compose and Decompose Teen Numbers with Symbols **Math in Action:** pp. 133–136, 333–336, 423–426, 563–566

New York State Next Generation Mathematics Learning Standards Kindergarten		i-Ready Classroom Mathematics Lessons Kindergarten
Count to tell the number of objects.		
K.CC.4	Understand the relationship between numbers and quantities up to 20; connect counting to cardinality.	
K.CC.4.a	When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. (1:1 correspondence)	**Lesson 4:** Count, Show, and Write Numbers to 5 **Lesson 11:** Count, Show, and Write Numbers 6 to 10 **Lesson 16:** Count, Read, and Write Numbers 11 to 20 **Supporting Content:** Lesson 3: Sort and Count Objects; Lesson 5: Compare Numbers to 5; Lesson 12: Compare Numbers to 10; Lesson 17: Count Within 100 **Math in Action:** pp. 133–136, 423–426
K.CC.4.b	Understand that the last number name said tells the number of objects counted (cardinality). The number of objects is the same regardless of their arrangement or the order in which they were counted.	**Lesson 4:** Count, Show, and Write Numbers to 5 **Lesson 11:** Count, Show, and Write Numbers 6 to 10 **Lesson 16:** Count, Read, and Write Numbers 11 to 20 **Supporting Content:** Lesson 3: Sort and Count Objects; Lesson 5: Compare Numbers to 5; Lesson 12: Compare Numbers to 10; Lesson 17: Count Within 100 **Math in Action:** pp. 133–136, 423–426
K.CC.4.c	Understand the concept that each successive number name refers to a quantity that is one larger.	**Lesson 5:** Compare Numbers to 5 **Lesson 12:** Compare Numbers to 10 **Supporting Content:** Lesson 4: Count, Show, and Write Numbers to 5; Lesson 11: Count, Show, and Write Numbers 6 to 10; Lesson 16: Count, Read, and Write Numbers 11 to 20; Lesson 17: Count Within 100
K.CC.4.d	Understand the concept of ordinal numbers (first through tenth) to describe the relative position and magnitude of whole numbers.	**Supporting Content:** **Lesson 1**: Describe Position **Lesson 12**: Compare Numbers to 10

New York State Next Generation Mathematics Learning Standards Kindergarten		i-Ready Classroom Mathematics Lessons Kindergarten
K.CC.5a	Answer counting questions using as many as 20 objects arranged in a line, a rectangular array, and a circle. Answer counting questions using as many as 10 objects in a scattered configuration. e.g., "How many _____ are there?"	**Lesson 3:** Sort and Count Objects **Lesson 4:** Count, Show, and Write Numbers to 5 **Lesson 11:** Count, Show, and Write Numbers 6 to 10 **Lesson 16:** Count, Read, and Write Numbers 11 to 20 **Supporting Content:** Lesson 5: Compare Numbers to 5; Lesson 7: Add Within 5; Lesson 9: Subtract Within 5; Lesson 10: Add and Subtract Within 5; Lesson 12: Compare Numbers to 10; Lesson 14: Compose and Decompose 10; Lesson 17: Count Within 100; Lesson 18: Compose and Decompose 6 and 7; Lesson 19: Compose and Decompose 8 and 9; Lesson 20: Add Within 10; Lesson 21: Subtract Within 10; Lesson 22: Add and Subtract to Solve Word Problems; Lesson 23: Compose and Decompose Teen Numbers with Tools and Drawings; Lesson 25: Compose and Decompose Teen Numbers with Symbols **Math in Action:** pp. 133–136, 333–336, 423–426, 563–566

New York State Next Generation Mathematics Learning Standards Kindergarten		i-Ready Classroom Mathematics Lessons Kindergarten
K.CC.5b	Given a number from 1–20, count out that many objects.	**Lesson 3:** Sort and Count Objects **Lesson 4:** Count, Show, and Write Numbers to 5 **Lesson 11:** Count, Show, and Write Numbers 6 to 10 **Lesson 16:** Count, Read, and Write Numbers 11 to 20 **Supporting Content:** Lesson 5: Compare Numbers to 5; Lesson 7: Add Within 5; Lesson 9: Subtract Within 5; Lesson 10: Add and Subtract Within 5; Lesson 12: Compare Numbers to 10; Lesson 14: Compose and Decompose 10; Lesson 17: Count Within 100; Lesson 18: Compose and Decompose 6 and 7; Lesson 19: Compose and Decompose 8 and 9; Lesson 20: Add Within 10; Lesson 21: Subtract Within 10; Lesson 22: Add and Subtract to Solve Word Problems; Lesson 23: Compose and Decompose Teen Numbers with Tools and Drawings; Lesson 25: Compose and Decompose Teen Numbers with Symbols **Math in Action:** pp. 133–136, 333–336, 423–426, 563–566
	Compare numbers.	
K.CC.6	Identify whether the number of objects in one group is greater than (more than), less than (fewer than), or equal to (the same as) the number of objects in another group. e.g., using matching and counting strategies	**Lesson 5:** Compare Numbers to 5 **Lesson 12:** Compare Numbers to 10 **Supporting Content:** Lesson 3: Sort and Count Objects **Math in Action:** pp. 133–136
K.CC.7	Compare two numbers between 1 and 10 presented as written numerals. e.g., 6 is greater than 2	**Lesson 5:** Compare Numbers to 5 **Lesson 12:** Compare Numbers to 10

New York State Next Generation Mathematics Learning Standards Kindergarten	i-Ready Classroom Mathematics Lessons Kindergarten
K.OA	**Operations and Algebraic Thinking**
	Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
K.OA.1 — Represent addition and subtraction using objects, fingers, pennies, drawings, sounds, acting out situations, verbal explanations, expressions, equations, or other strategies.	**Lesson 7:** Add Within 5 **Lesson 9:** Subtract Within 5 **Lesson 10:** Add and Subtract Within 5 **Lesson 20:** Add Within 10 **Lesson 21:** Subtract Within 10 **Supporting Content:** Lesson 14: Compose and Decompose 10; Lesson 18: Compose and Decompose 6 and 7; Lesson 19: Compose and Decompose 8 and 9; Lesson 22: Add and Subtract to Solve Word Problems **Math in Action:** pp. 223–226, 493–496
K.OA.2a — Add and subtract within 10.	**Lesson 7**: Add Within 5 **Lesson 9**: Subtract Within 5 **Lesson 10**: Add and Subtract Within 5 **Lesson 20**: Add Within 10 **Lesson 21**: Subtract Within 10 **Supporting Content**: Lesson 14: Compose and Decompose 10; Lesson 15: Find Number Partners for 10; Lesson 18: Compose and Decompose 6 and 7; Lesson 19: Compose and Decompose 8 and 9 **Math in Action**: pp. 223–226, 493–496

New York State Next Generation Mathematics Learning Standards Kindergarten		i-Ready Classroom Mathematics Lessons Kindergarten
K.OA.2b	Solve addition and subtraction word problems within 10. e.g., using objects or drawings to represent the problem	**Lesson 7:** Add Within 5 **Lesson 9:** Subtract Within 5 **Lesson 10:** Add and Subtract Within 5 **Lesson 20:** Add Within 10 **Lesson 21:** Subtract Within 10 **Lesson 22:** Add and Subtract to Solve Word Problems **Supporting Content:** Lesson 14: Compose and Decompose 10; Lesson 15: Find Number Partners for 10; Lesson 18: Compose and Decompose 6 and 7; Lesson 19: Compose and Decompose 8 and 9 **Math in Action:** pp. 223–226, 493–496
K.OA.3	Decompose numbers less than or equal to 10 into pairs in more than one way. Record each decomposition with a drawing or equation. e.g., using objects or drawings	**Lesson 14:** Compose and Decompose 10 **Lesson 18:** Compose and Decompose 6 and 7 **Lesson 19:** Compose and Decompose 8 and 9 **Supporting Content:** Lesson 15: Find Number Partners for 10; Lesson 22: Add and Subtract to Solve Word Problems **Math in Action:** pp. 223–226,423–426, 493–496
K.OA.4	Find the number that makes 10 when given a number from 1 to 9. Record the answer with a drawing or equation. e.g., using objects or drawings	**Lesson 15:** Find Number Partners for 10 **Supporting Content:** Lesson 14: Compose and Decompose 10 **Math in Action:** pp. 223–226
K.OA.5	Fluently add and subtract within 5.	**Lesson 7:** Add Within 5 **Lesson 9:** Subtract Within 5 **Lesson 10:** Add and Subtract Within 5 **Lesson 20:** Add Within 10 **Lesson 21:** Subtract Within 10

New York State Next Generation Mathematics Learning Standards Kindergarten		i-Ready Classroom Mathematics Lessons Kindergarten
Understand simple patterns.		
K.OA.6	Duplicate, extend, and create simple patterns using concrete objects.	**Lesson 3**: Sort and Count Objects **Lesson 11**: Count, Show, and Write Numbers 6 to 10 **Lesson 20**: Add Within 10 **Supporting Content**: Lesson 4: Count, Show, and Write Numbers to 5; Lesson 9: Subtract Within 5; Lesson 16: Count, Read, and Write Numbers 11 to 20; Lesson 17: Count Within 100; Lesson 21: Subtract Within 10; Lesson 24: Build with Shapes *Note: The lessons cited include creating patterns using numbers, sounds, and movements.* *Note: Start/Number Sense activities engage students in lively mathematical discourse to help them develop a sense of number and quantity, see patterns and relationships, and use numbers flexibly .*
K.NBT	**Number and Operations in Base Ten**	
Work with numbers 11–19 to gain foundations for place value.		
K.NBT.1	Compose and decompose the numbers from 11 to 19 into ten ones and one, two, three, four, five, six, seven, eight, or nine ones. e.g., using objects or drawings	**Lesson 23:** Compose and Decompose Teen Numbers with Tools and Drawings **Lesson 25:** Compose and Decompose Teen Numbers with Symbols **Supporting Content:** Lesson 14: Compose and Decompose 10 **Math in Action:** pp. 565–566

New York State Next Generation Mathematics Learning Standards Kindergarten		i-Ready Classroom Mathematics Lessons Kindergarten
K.MD	**Measurement and Data**	
	Describe and compare measurable attributes.	
K.MD.1	Describe measurable attributes of an object(s), such as length or weight, using appropriate vocabulary. e.g., small, big, short, tall, empty, full, heavy, and light	**Lesson 2:** Describe and Compare Length and Height **Lesson 6:** Three-Dimensional Shapes and Weight **Supporting Content:** Lesson 3: Sort and Count Objects
K.MD.2	Directly compare two objects with a common measurable attribute and describe the difference.	**Lesson 2:** Describe and Compare Length and Height **Lesson 6:** Three-Dimensional Shapes and Weight
	Classify objects and count the number of objects in each category.	
K.MD.3	Classify objects into given categories; count the objects in each category and sort the categories by count.	**Lesson 3:** Sort and Count Objects **Supporting Content:** Lesson 2: Describe and Compare Length and Height; Lesson 4: Count, Show, and Write Numbers to 5; Lesson 6: Three-Dimensional Shapes and Weight; Lesson 8: Two-Dimensional Shapes **Math in Action:** pp. 63–66, 133–136
K.MD.4	Explore coins (pennies, nickels, dimes, and quarters) and begin identifying pennies and dimes.	**See Grade 1:** **Lesson 27:** Money
K.G	**Geometry**	
	Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).	
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.	**Lesson 1:** Describe Position **Lesson 6:** Three-Dimensional Shapes and Weight **Lesson 8:** Two-Dimensional Shapes **Supporting Content:** Lesson 13: Compose Shapes **Math in Action:** pp. 63–66

New York State Next Generation Mathematics Learning Standards Kindergarten		i-Ready Classroom Mathematics Lessons Kindergarten
K.G.2	Name shapes regardless of their orientation or overall size.	**Lesson 6:** Three-Dimensional Shapes and Weight **Lesson 8:** Two-Dimensional Shapes **Supporting Content:** Lesson 13: Compose Shapes; Lesson 24: Build with Shapes **Math in Action:** pp. 223–226, 563–566
K.G.3	Understand the difference between two-dimensional (lying in a plane, "flat") and three-dimensional ("solid") shapes.	**Lesson 24:** Build with Shapes **Supporting Content:** Lesson 6: Three-Dimensional Shapes and Weight; Lesson 8: Two-Dimensional Shapes
	Analyze, compare, sort, and compose shapes.	
K.G.4	Analyze, compare, and sort two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts, and other attributes. e.g., number of sides, number of vertices/"corners," or having sides of equal length	**Lesson 6:** Three-Dimensional Shapes and Weight **Lesson 8:** Two-Dimensional Shapes **Supporting Content:** Lesson 13: Compose Shapes; Lesson 24: Build with Shapes **Math in Action:** pp. 223–226
K.G.5	Model objects in their environment by building and/or drawing shapes. e.g., using blocks to build a simple representation in the classroom	**Lesson 13:** Compose Shapes **Lesson 24:** Build with Shapes **Supporting Content:** Lesson 6: Three-Dimensional Shapes and Weight; Lesson 8: Two-Dimensional Shapes **Math in Action:** pp. 563–566

New York State Next Generation Mathematics Learning Standards Kindergarten		i-Ready Classroom Mathematics Lessons Kindergarten
K.G.6	Compose larger shapes from simple shapes. e.g., join two triangles to make a rectangle	**Lesson 13:** Compose Shapes **Supporting Content:** Lesson 6: Three-Dimensional Shapes and Weight; Lesson 8: Two-Dimensional Shapes; Lesson 24: Build with Shapes **Math in Action:** pp. 333–336, 563–566

Note: i-Ready Classroom Mathematics addresses number sense skills every day with dedicated number sense activities and fun counting and cardinality practice. Number Sense activities provide daily opportunities for children to talk about numbers and relationships, develop understanding of numbers, and use numbers and operations flexibly. Counting Routines provide children with engaging opportunities to practice rote counting daily.

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New York State Next Generation Mathematics Learning Standards Grade 1	i-Ready Classroom Mathematics Lessons Grade 1
Grade 1	
1.OA	**Operations and Algebraic Thinking**
	Represent and solve problems involving addition and subtraction.
1.OA.1	Use addition and subtraction within 20 to solve one step word problems involving situations of adding to, taking from, putting together, taking apart, and/or comparing, with unknowns in all positions.	**Lesson 2:** Add and Subtract Within 10 **Lesson 5:** Solve Word Problems to 10 **Lesson 9:** Use a Ten to Subtract **Lesson 11:** Solve Word Problems to 20 **Lesson 12:** Solve Compare Problems **Supporting Content:** Lesson 1: Number Partners for 10; Lesson 3: Use Counting Strategies to Add and Subtract; Lesson 4: Use Addition to Subtract; Lesson 8: Make a Ten to Add; Lesson 10: Doubles and Near Doubles; Lesson 13: Collect and Compare Data; Lesson 14: True and False Equations **Math in Action:** pp. 123–126, 253–256, 359–362
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	**Lesson 7:** Add Three Numbers **Supporting Content:** Lesson 13: Collect and Compare Data **Math in Action:** pp. 253–256, 359–362
	Understand and apply properties of operations and the relationship between addition and subtraction.
1.OA.3	Apply properties of operations as strategies to add and subtract. e.g., • If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) • To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)	**Lesson 1:** Number Partners for 10 **Lesson 7:** Add Three Numbers **Supporting Content:** Lesson 8: Make a Ten to Add; Lesson 9: Use a Ten to Subtract; Lesson 10: Doubles and Near Doubles; Lesson 14: True and False Equations; Lesson 20: Add Two-Digit and One-Digit Numbers; Lesson 21: Add Two-Digit Numbers **Math in Action:** pp. 253–256

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New York State Next Generation Mathematics Learning Standards Grade 1		i-Ready Classroom Mathematics Lessons Grade 1
1.OA.4	Understand subtraction as an unknown-addend problem within 20. e.g., Subtract 10 – 8 by finding the number that makes 10 when added to 8.	**Lesson 4:** Use Addition to Subtract **Lesson 5:** Solve Word Problems to 10 **Lesson 11:** Solve Word Problems to 20 **Supporting Content:** Lesson 12: Solve Compare Problems
	Add and subtract within 20.	
1.OA.5	Relate counting to addition and subtraction.	**Lesson 3:** Use Counting Strategies to Add and Subtract **Lesson 4:** Use Addition to Subtract **Supporting Content:** Lesson 5: Solve Word Problems to 10; Lesson 11: Solve Word Problems to 20 **Math in Action:** pp. 123–126
1.OA.6a	Add and subtract within 20. Use strategies such as:	
1.OA.6a.i	counting on;	**Lesson 3**: Use Counting Strategies to Add and Subtract **Supporting Content**: Lesson 1: Number Partners for 10; Lesson 2: Add and Subtract Within 10; Lesson 4: Use Addition to Subtract; Lesson 5: Solve Word Problems to 10; Lesson 7: Add Three Numbers; Lesson 8: Make a Ten to Add; Lesson 9: Use a Ten to Subtract; Lesson 10: Doubles and Near Doubles; Lesson 11: Solve Word Problems to 20; Lesson 12: Solve Compare Problems; Lesson 14: True and False Equations **Math in Action**: pp. 123–126, 253–256, 359–362

New York State Next Generation Mathematics Learning Standards Grade 1		i-Ready Classroom Mathematics Lessons Grade 1
1.OA.6a.ii	making ten; e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14	**Lesson 1:** Number Partners for 10 **Lesson 8**: Make a Ten to Add **Lesson 9**: Use a Ten to Subtract **Supporting Content**: Lesson 2: Add and Subtract Within 10; Lesson 3: Use Counting Strategies to Add and Subtract; Lesson 4: Use Addition to Subtract; Lesson 5: Solve Word Problems to 10; Lesson 7: Add Three Numbers; Lesson 10: Doubles and Near Doubles; Lesson 11: Solve Word Problems to 20; Lesson 12: Solve Compare Problems; Lesson 14: True and False Equations **Math in Action**: pp. 123–126, 253–256, 359–362
1.OA.6a.iii	decomposing a number leading to a ten; e.g., 13 − 4 = 13 − 3 − 1 = 10 − 1 = 9	
1.OA.6a.iv	using the relationship between addition and subtraction; and e.g., knowing that 8 + 4 = 12, one knows 12 − 8 = 4	**Lesson 4:** Use Addition to Subtract **Supporting Content:** Lesson 1: Number Partners for 10; Lesson 2: Add and Subtract Within 10; Lesson 3: Use Counting Strategies to Add and Subtract; Lesson 5: Solve Word Problems to 10; Lesson 7: Add Three Numbers; Lesson 8: Make a Ten to Add Lesson 9: Use a Ten to Subtract; Lesson 10: Doubles and Near Doubles; Lesson 11: Solve Word Problems to 20; Lesson 12: Solve Compare Problems; Lesson 14: True and False Equations **Math in Action**: pp. 123–126, 253–256, 359–362

New York State Next Generation Mathematics Learning Standards Grade 1		i-Ready Classroom Mathematics Lessons Grade 1
1.OA.6a.v	creating equivalent but easier or known sums. e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13	**Lesson 1**: Number Partners for 10 **Lesson 4**: Use Addition to Subtract **Lesson 8**: Make a Ten to Add **Lesson 9**: Use a Ten to Subtract **Lesson 10**: Doubles and Near Doubles **Supporting Content:** Lesson 2: Add and Subtract Within 10; Lesson 3: Use Counting Strategies to Add and Subtract; Lesson 5: Solve Word Problems to 10; Lesson 7: Add Three Numbers; Lesson 11: Solve Word Problems to 20; Lesson 12: Solve Compare Problems; Lesson 14: True and False Equations **Math in Action**: pp. 123–126, 253–256, 359–362
1.OA.6b	Fluently add and subtract within 10.	**Lesson 2:** Add and Subtract Within 10 **Lesson 5**: Solve Word Problems to 10 **Supporting Content**: Lesson 1: Number Partners for 10; Lesson 3: Use Counting Strategies to Add and Subtract; Lesson 4: Use Addition to Subtract; Lesson 7: Add Three Numbers; Lesson 8: Make a Ten to Add; Lesson 9: Use a Ten to Subtract; Lesson 10: Doubles and Near Doubles; Lesson 11: Solve Word Problems to 20; Lesson 12: Solve Compare Problems; Lesson 14: True and False Equations **Math in Action**: pp. 123–126, 253–256, 359–362
	Work with addition and subtraction equations.	
1.OA.7	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. e.g., Which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2	**Lesson 14:** True and False Equations **Supporting Content:** Lesson 8: Make a Ten to Add; Lesson 17: Compare Numbers

New York State Next Generation Mathematics Learning Standards Grade 1		i-Ready Classroom Mathematics Lessons Grade 1
1.OA.8	Determine the unknown whole number in an addition or subtraction equation with the unknown in all positions. e.g., Determine the unknown number that makes the equation true in each of the equations: $8 + ? = 11$, $\_\_ - 3 = 5$, $6 + 6 = \square$	**Lesson 14:** True and False Equations **Supporting Content:** Lesson 1: Number Partners for 10; Lesson 4: Use Addition to Subtract; Lesson 11: Solve Word Problems to 20; Lesson 12: Solve Compare Problems
1.NBT	**Number and Operations in Base Ten**	
	Extend the counting sequence.	
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.	**Lesson 16:** Numbers to 120 **Supporting Content:** Lesson 6: Teen Numbers; Lesson 13: Collect and Compare Data; Lesson 27: Money **Math in Action:** pp. 441–444
	Understand place value.	
1.NBT.2	Understand that the two digits of a two-digit number represent amounts of tens and ones.	
1.NBT.2.a	Understand 10 can be thought of as a bundle of ten ones, called a "ten."	**Lesson 6:** Teen Numbers **Lesson 15:** Tens and Ones **Supporting Content:** Lesson 9: Use a Ten to Subtract, Lesson 16: Numbers to 120; Lesson 17: Compare Numbers; Lesson 20: Add Two-Digit and One-Digit Numbers; Lesson 21: Add Two-Digit Numbers **Math in Action:** pp. 253–256, 441–444
1.NBT.2.b	Understand the numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.	**Lesson 6:** Teen Numbers **Supporting Content:** Lesson 9: Use a Ten to Subtract; Lesson 15: Tens and Ones; Lesson 16: Numbers to 120, Lesson 17: Compare Numbers; Lesson 20: Add Two-Digit and One-Digit Numbers; Lesson 21: Add Two-Digit Numbers **Math in Action:** pp. 253–256

New York State Next Generation Mathematics Learning Standards Grade 1		i-Ready Classroom Mathematics Lessons Grade 1
1.NBT.2.c	Understand 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).	**Lesson 6:** Teen Numbers **Lesson 15:** Tens and Ones **Supporting Content:** Lesson 16: Numbers to 120; Lesson 17: Compare Numbers; Lesson 18: Add and Subtract Tens; Lesson 19: Addition with Two-Digit Numbers; Lesson 20: Add Two-Digit and One-Digit Numbers; Lesson 21: Add Two-Digit Numbers **Math in Action:** pp. 253–256, 441–444
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 <.	**Lesson 17:** Compare Numbers **Supporting Content:** **Math in Action:** pp. 441–444
	Use place value understanding and properties of operations to add and subtract.	
1.NBT.4	Add within 100, including • a two-digit number and a one-digit number, • a two-digit number and a multiple of 10. Use concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones, and sometimes it is necessary to compose a ten. Relate the strategy to a written representation and explain the reasoning used.	**Lesson 18:** Add and Subtract Tens **Lesson 19:** Addition with Two-Digit Numbers **Lesson 20:** Add Two-Digit and One-Digit Numbers **Lesson 21:** Add Two-Digit Numbers **Supporting Content:** **Math in Action:** pp. 547–550
1.NBT.5	Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	**Lesson 16:** Numbers to 120 **Supporting Content:** Lesson 17: Compare Numbers; Lesson 18: Add and Subtract Tens; Lesson 19: Addition with Two-Digit Numbers; Lesson 27: Money

New York State Next Generation Mathematics Learning Standards Grade 1		i-Ready Classroom Mathematics Lessons Grade 1
1.NBT.6	Subtract multiples of 10 from multiples of 10 in the range 10–90 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 used to a written representation and explain the reasoning.	**Lesson 18:** Add and Subtract Tens
1.MD	**Measurement and Data**	
	Measure lengths indirectly and by iterating length units.	
1.MD.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object.	**Lesson 25:** Compare and Order Lengths **Supporting Content:** Lesson 26: Measure Length **Math in Action:** pp. 701–704
1.MD.2	Measure the length of an object using same-size "length units" placed end to end with no gaps or overlaps. Express the length of an object as a whole number of "length units."	**Lesson 26:** Measure Length
	Tell and write time and money.	
1.MD.3a	Tell and write time in hours and half-hours using analog and digital clocks. Develop an understanding of common terms, such as, but not limited to, *o'clock* and *half past*.	**Lesson 24:** Tell Time
1.MD.3b	Recognize and identify coins (penny, nickel, dime, and quarter) and their value and use the cent symbol (¢) appropriately.	**Lesson 27**: Money
1.MD.3c	Count a mixed collection of dimes and pennies and determine the cent value (total not to exceed 100 cents). e.g., 3 dimes and 4 pennies is the same as 3 tens and 4 ones, which is 34¢.	**Lesson 27**: Money

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New York State Next Generation Mathematics Learning Standards Grade 1		i-Ready Classroom Mathematics Lessons Grade 1
	Represent and interpret data.	
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.	**Lesson 13:** Collect and Compare Data **Supporting Content:** Lesson 14: True and False Equations; Lesson 17: Compare Numbers **Math in Action:** pp. 253–256, 359–362, 441–444, 547–550, 701–704
1.G	**Geometry**	
	Reason with shapes and their attributes.	
1.G.1	Distinguish between defining attributes versus non-defining attributes for a wide variety of shapes. Build and/or draw shapes to possess defining attributes. e.g., • A defining attribute may include, but is not limited to: triangles are closed and three-sided. • Non-defining attributes include, but are not limited to: color, orientation, and overall size.	**Lesson 22:** Shapes **Supporting Content:** **Math in Action:** pp. 701–704
1.G.2	Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.	**Lesson 22:** Shapes **Supporting Content:** **Math in Action:** pp. 701–704

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New York State Next Generation Mathematics Learning Standards Grade 1		i-Ready Classroom Mathematics Lessons Grade 1
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.	**Lesson 23:** Break Shapes into Equal Parts **Supporting Content:** Lesson 24: Tell Time **Math in Action:** pp. 701–704

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Grade 2

New York State Next Generation Mathematics Learning Standards Grade 2	i-Ready Classroom Mathematics Lessons Grade 2

Grade 2	
2.OA	**Operations and Algebraic Thinking**
2.OA.A	Represent and solve problems involving addition and subtraction.
2.OA.1a	Use addition and subtraction within 100 to solve one-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions. *e.g., using drawings and equations with a symbol for the unknown number to represent the problem*	**Lesson 3:** Solve One-Step Word Problems **Lesson 9:** Solve Word Problems with Two-Digit Numbers **Lesson 10:** Solve Word Problems Involving Money **Supporting Content:** Lesson 1: Mental Math Strategies for Addition; Lesson 2: Mental Math Strategies for Subtraction; Lesson 4: Draw and Use Bar Graphs and Picture Graphs; Lesson 25: Add and Subtract Lengths; Lesson 26: Add and Subtract on the Number Line **Math in Action**: pp. 124–131, 302–309, 492–499
2.OA.1b	Use addition and subtraction within 100 to develop an understanding of solving two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions. *e.g., using drawings and equations with a symbol for the unknown number to represent the problem*	**Lesson 5:** Solve Two-Step Word Problems **Lesson 9:** Solve Word Problems with Two-Digit Numbers **Lesson 10:** Solve Word Problems Involving Money **Supporting Content:** Lesson 6: Add Two-Digit Numbers; Lesson 7: Subtract Two-Digit Numbers; Lesson 8: Use Addition and Subtraction Strategies with Two-Digit Numbers; Lesson 19: Add Several Two-Digit Numbers; Lesson 25: Add and Subtract Lengths **Math in Action:** pp. 302–309, 492–499

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Add and subtract within 20.		
2.OA.2a	Fluently add and subtract within 20 using mental strategies. Strategies could include:	
2.OA.2a.i	counting on;	**Lesson 1:** Mental Math Strategies for Addition **Lesson 2**: Mental Math Strategies for Subtraction **Supporting Content:** Lesson 3: Solve One-Step Word Problems **Math in Action**: pp. 124–131
2.OA.2a.ii	making ten; *e.g., 8 + 6 =* *8 + 2 + 4 =* *10 + 4 = 14*	**Lesson 1:** Mental Math Strategies for Addition **Lesson 2**: Mental Math Strategies for Subtraction **Supporting Content:** Lesson 3: Solve One-Step Word Problems **Math in Action**: pp. 124–131
2.OA.2a.iii	decomposing a number leading to a ten; *e.g., 13 − 4 =* *13 − 3 − 1 =* *10 − 1 = 9*	**Lesson 1:** Mental Math Strategies for Addition **Lesson 2**: Mental Math Strategies for Subtraction **Supporting Content:** Lesson 3: Solve One-Step Word Problems **Math in Action**: pp. 124–131
2.OA.2a.iv	using the relationship between addition and subtraction; and *e.g., knowing that 8 + 4 = 12,* *one knows 12 − 8 = 4*	**Lesson 2**: Mental Math Strategies for Subtraction **Supporting Content:** Lesson 3: Solve One-Step Word Problems **Math in Action**: pp. 124–131
2.OA.2a.v	creating equivalent but easier or known sums. *e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13*	**Lesson 1:** Mental Math Strategies for Addition **Supporting Content:** Lesson 3: Solve One-Step Word Problems **Math in Action**: pp. 124–131

New York State Next Generation Mathematics Learning Standards Grade 2		i-Ready Classroom Mathematics Lessons Grade 2
2.OA.2b	Know from memory all sums within 20 of two one-digit numbers.	**Lesson 1:** Mental Math Strategies for Addition **Lesson 2:** Mental Math Strategies for Subtraction **Supporting Content:** Lesson 3: Solve One-Step Word Problems **Math in Action**: pp. 124–131
	Work with equal groups of objects to gain foundations for multiplication.	
2.OA.3a	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*	**Lesson 32**: Even and Odd Numbers **Supporting Content**: **Math in Action**: pp. 784–791
2.OA.3b	Write an equation to express an even number as a sum of two equal addends.	**Lesson 32**: Even and Odd Numbers **Supporting Content**: **Math in Action**: pp. 784–791
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.	**Lesson 31**: Add Using Arrays **Supporting Content:** **Math in Action:** pp. 784–791
2.NBT	**Number and Operations in Base Ten**	
	Understand place value.	
2.NBT.1	Understand that the digits of a three-digit number represent amounts of hundreds, tens, and ones. *e.g., 706 equals 7 hundreds, 0 tens, and 6 ones*	
2.NBT.1.a	Understand 100 can be thought of as a bundle of ten tens, called a "hundred."	**Lesson 12:** *Understand* Three-Digit Numbers **Supporting Content:** Lesson 13: Read and Write Three-Digit Numbers **Math in Action:** pp. 492–499
2.NBT.1.b	Understand 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).	**Lesson 12:** *Understand* Three-Digit Numbers **Supporting Content:** Lesson 13: Read and Write Three-Digit Numbers **Math in Action:** pp. 492–499

New York State Next Generation Mathematics Learning Standards Grade 2		i-Ready Classroom Mathematics Lessons Grade 2
2.NBT.2	Count within 1000; skip count by 5s, 10s, and 100s.	**Lesson 15:** Mental Addition and Subtraction **Supporting Content:** Lesson 10: Solve Word Problems Involving Money; Lesson 11: Tell and Write Time; Lesson 31: Add Using Arrays **Math in Action**: pp. 302–309
2.NBT.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. *e.g., expanded form: 237 = 200 + 30 + 7*	**Lesson 13:** Read and Write Three-Digit Numbers **Supporting Content**: Lesson 14: Compare Three-Digit Numbers; Lesson 16: Add Three-Digit Numbers; Lesson 17: Subtract Three-Digit Numbers **Math in Action:** pp. 492–499
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.	**Lesson 14:** Compare Three-Digit Numbers **Supporting Content:** **Math in Action**: pp. 492–499
Use place value understanding and properties of operations to add and subtract.		
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.	**Lesson 6:** Add Two-Digit Numbers **Lesson 7:** Subtract Two-Digit Numbers **Lesson 8:** Use Addition and Subtraction Strategies with Two-Digit Numbers **Supporting Content:** Lesson 9: Solve Word Problems with Two-Digit Numbers; Lesson 10: Solve Word Problems Involving Money; Lesson 19: Add Several Two-Digit Numbers; Lesson 25: Add and Subtract Lengths **Math in Action:** pp. 302–309, 492–499
2.NBT.B.6	Add up to four two-digit numbers using strategies based on place value and properties of operations.	**Lesson 19:** Add Several Two-Digit Numbers **Supporting Content**: **Math in Action**: pp. 492–499

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New York State Next Generation Mathematics Learning Standards Grade 2		i-Ready Classroom Mathematics Lessons Grade 2
2.NBT.7a	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 representation.	**Lesson 16:** Add Three-Digit Numbers **Lesson 17:** Subtract Three-Digit Numbers **Lesson 18:** Use Addition and Subtraction Strategies with Three-Digit Numbers **Supporting Content:** **Math in Action:** pp. 492–499
2.NBT.7b	Understand that in adding or subtracting up to 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.	**Lesson 16:** Add Three-Digit Numbers **Lesson 17:** Subtract Three-Digit Numbers **Lesson 18:** Use Addition and Subtraction Strategies with Three-Digit Numbers **Supporting Content:** **Math in Action:** pp. 492–499
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.	**Lesson 15:** Mental Addition and Subtraction **Supporting Content:** Lesson 16: Add Three-Digit Numbers Lesson 17: Subtract Three-Digit Numbers **Math in Action**: pp. 492–499
2.NBT.9	Explain why addition and subtraction strategies work, using place value and the properties of operations.	**Lesson 6:** Add Two-Digit Numbers **Lesson 7:** Subtract Two-Digit Numbers **Lesson 8:** Use Addition and Subtraction Strategies with Two-Digit Numbers **Lesson 16:** Add Three-Digit Numbers **Lesson 17:** Subtract Three-Digit Numbers **Lesson 18:** Use Addition and Subtraction Strategies with Three-Digit Numbers **Lesson 19:** Add Several Two-Digit Numbers **Supporting Content**: **Math in Action**: pp. 302–399, 492–499

New York State Next Generation Mathematics Learning Standards Grade 2		i-Ready Classroom Mathematics Lessons Grade 2
2.MD	**Measurement and Data**	
	Measure and estimate lengths in standard units.	
2.MD.1	Measure the length of an object to the nearest whole by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	**Lesson 20:** Measure in Inches and Centimeters **Lesson 21:** Measure in Feet and Meters Supporting Content: Lesson 23: Estimate and Measure Length; Lesson 24: Compare Lengths **Math in Action:** pp. 676–683
2.MD.2	Measure the length of an object twice, using different "length units" for the two measurements; describe how the two measurements relate to the size of the unit chosen.	**Lesson 22**: Understand Measurement with Different Units Supporting Content: **Math in Action**: pp. 676–683
2.MD.3	Estimate lengths using units of inches, feet, centimeters, and meters.	**Lesson 23:** Estimate and Measure Length Supporting Content: **Math in Action:** pp. 676–683
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."	**Lesson 24:** Compare Lengths Supporting Content: **Math in Action:** pp. 676–683
	Relate addition and subtraction to length.	
2.MD.5	Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units. *e.g., using drawings and equations with a symbol for the unknown number to represent the problem*	**Lesson 25:** Add and Subtract Lengths Supporting Content: **Math in Action:** pp. 676–683
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.	**Lesson 26:** Add and Subtract on the Number Line Supporting Content: Lesson 27: Read and Make Line Plots **Math in Action:** pp. 676–683

New York State Next Generation Mathematics Learning Standards Grade 2		i-Ready Classroom Mathematics Lessons Grade 2
Work with time and money.		
2.MD.7	Tell and write time from analog and digital clocks in five minute increments, using a.m. and p.m. Develop an understanding of common terms, such as, but not limited to, *quarter past* , *half past* , and *quarter to* .	**Lesson 11:** Tell and Write Time **Supporting Content:** **Math in Action:** pp. 302–309 **Note:** This lesson includes position words, such as *after* , *between* , and *past* to describe placement of the hour-hand, but does not use the terms *quarter past, half past,* and *quarter to.*
2.MD.8a	Count a mixed collection of coins whose sum is less than or equal to one dollar.	**Lesson 10:** Solve Word Problems Involving Money **Supporting Content:** Lesson 19: Add Several Two-Digit Numbers **Math in Action**: pp. 302–309
2.MD.8b	Solve real world and mathematical problems within one dollar involving quarters, dimes, nickels, and pennies, using the ¢ (cent) symbol appropriately. *e.g., If you have 2 quarters, 2 dimes, and 3 pennies, how many cents do you have?*	**Lesson 10:** Solve Word Problems Involving Money **Supporting Content:** Lesson 19: Add Several Two-Digit Numbers **Math in Action**: pp. 302–309
Represent and interpret data.		
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. Present the measurement data in a line plot, where the horizontal scale is marked off in whole-number units.	**Lesson 27:** Read and Make Line Plots **Supporting Content:** **Math in Action:** pp. 676–683
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 picture graph or a bar graph.	**Lesson 4:** Draw and Use Bar Graphs and Picture Graphs **Supporting Content:** **Math in Action:** pp. 124–131

New York State Next Generation Mathematics Learning Standards Grade 2		i-Ready Classroom Mathematics Lessons Grade 2
2.G	**Geometry**	
	Reason with shapes and their attributes.	
2.G.1	Classify two-dimensional figures as polygons or non-polygons.	**Lesson 28:** Recognize and Draw Shapes **Supporting Content:** **Math in Action:** pp. 784–791 **Note:** *In the lesson cited, students do not explicitly define polygons and non-polygons.*
2.G.2	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	**Lesson 30:** Partition Rectangles **Supporting Content:** **Math in Action:** 784–791
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*. Describe the whole as *two halves*, *three thirds*, *four fourths*. Recognize that equal shares of identical wholes need not have the same shape.	**Lesson 29:** *Understand* Partitioning Shapes into Halves, Thirds, and Fourths **Supporting Content:** **Math in Action:** pp. 784–791

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to the

New York State Next Generation Mathematics Learning Standards

Grade 3

New York State Next Generation Mathematics Learning Standards Grade 3	i-Ready Classroom Mathematics Lessons Grade 3

Grade 3

3.OA	**Operations and Algebraic Thinking**
	Represent and solve problems involving multiplication and division.

3.OA.1	Interpret products of whole numbers. *e.g., Interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. Describe a context in which a total number of objects can be expressed as 5 × 7.*	**Lesson 4:** *Understand* the Meaning of Multiplication **Supporting Content:** Lesson 8: Use Order and Grouping to Multiply; Lesson 9: Use Place Value to Multiply; Lesson 19: Scaled Graphs **Math in Action**: pp. 284–291
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. Describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*	**Lesson 10:** *Understand* the Meaning of Division **Lesson 11**: *Understand* How Multiplication and Division Are Connected **Supporting Content**: **Math in Action**: pp. 284–291
3.OA.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities. *e.g., using drawings and equations with a symbol for the unknown number to represent the problem*	**Lesson 5:** Multiply with 0, 1, 2, 5, and 10 **Lesson 6:** Multiply with 3, 4, and 6 **Lesson 7:** Multiply with 7, 8, and 9 **Lesson 17:** Solve One-Step Word Problems Using Multiplication and Division **Supporting Content**: Lesson 4: *Understand* the Meaning of Multiplication; Lesson 8: Use Order and Grouping to Multiply; Lesson 12: Multiplication and Division Facts; Lesson 15: Multiply to Find Area; Lesson 16: Add Areas; Lesson 18: Solve Two-Step Word Problems Using the Four Operations; Lesson 19: Scaled Graphs; Lesson 28: Liquid Volume; Lesson 29: Mass; Lesson 32: Area and Perimeter of Shapes **Math in Action:** pp. 284–291**,** 442–449

New York State Next Generation Mathematics Learning Standards Grade 3		i-Ready Classroom Mathematics Lessons Grade 3
3.OA.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *e.g., Determine the unknown number that makes the equation true in each of the equations: 8 × ? = 48, 5 = __ ÷ 3, 6 × 6 = ?*	**Lesson 12:** Multiplication and Division Facts <u>**Supporting Content:**</u> Lesson 17: Solve One-Step Word Problems Using Multiplication and Division; Lesson 18: Solve Two-Step Word Problems Using the Four Operations **Math in Action:** pp. 442–449
	Understand properties of multiplication and the relationship between multiplication and division.	
3.OA.5	Apply properties of operations as strategies to multiply and divide. *e.g.,* • *If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication)* • *3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication)* • *Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property)*	**Lesson 5:** Multiply with 0, 1, 2, 5, and 10 **Lesson 6:** Multiply with 3, 4, and 6 **Lesson 7:** Multiply with 7, 8, and 9 **Lesson 8:** Use Order and Grouping to Multiply <u>**Supporting Content:**</u> Lesson 9: Use Place Value to Multiply; Lesson 10: *Understand* the Meaning of Division; Lesson 12: Multiplication and Division Facts; Lesson 16: Add Areas **Math in Action:** pp. 284–291
3.OA.6	Understand division as an unknown-factor problem. *e.g., Find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*	**Lesson 11:** *Understand* How Multiplication and Division Are Connected <u>**Supporting Content:**</u> Lesson 12: Multiplication and Division Facts; Lesson 17: Solve One-Step Word Problems Using Multiplication and Division **Math in Action:** pp. 284–291

New York State Next Generation Mathematics Learning Standards Grade 3		i-Ready Classroom Mathematics Lessons Grade 3
Multiply and divide within 100.		
3.OA.7a	Fluently solve single-digit multiplication and related divisions, using strategies such as the relationship between multiplication and division or properties of operations. *e.g., Knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8.*	**Lesson 5:** Multiply with 0, 1, 2, 5, and 10 **Lesson 6:** Multiply with 3, 4, and 6 **Lesson 7:** Multiply with 7, 8, and 9 **Lesson 12:** Multiplication and Division Facts **Supporting Content:** Lesson 9: Use Place Value to Multiply; Lesson 17: Solve One-Step Word Problems Using Multiplication and Division; Lesson 18: Solve Two-Step Word Problems Using the Four Operations; Lesson 28: Liquid Volume; Lesson 29: Mass; Lesson 32: Area and Perimeter of Shapes **Math in Action:** pp. 284–291
3.OA.7b	Know from memory all products of two one-digit numbers.	**Lesson 5:** Multiply with 0, 1, 2, 5, and 10 **Lesson 6:** Multiply with 3, 4, and 6 **Lesson 7:** Multiply with 7, 8, and 9 **Lesson 12:** Multiplication and Division Facts **Supporting Content:** Lesson 9: Use Place Value to Multiply; Lesson 11: *Understand* How Multiplication and Division Are Connected; Lesson 17: Solve One-Step Word Problems Using Multiplication and Division; Lesson 18: Solve Two-Step Word Problems Using the Four Operations; Lesson 28: Liquid Volume; Lesson 29: Mass; Lesson 32: Area and Perimeter of Shapes **Math in Action:** pp. 284–291
Solve problems involving the four operations, and identify and explain patterns in arithmetic.		
3.OA.8	Solve two-step word problems posed with whole numbers and having whole-number answers using the four operations.	
3.OA.8.a	Represent these problems using equations or expressions with a letter standing for the unknown quantity.	**Lesson 18:** Solve Two-Step Word Problems Using the Four Operations **Supporting Content**: **Math in Action**: pp. 442–449

New York State Next Generation Mathematics Learning Standards Grade 3		i-Ready Classroom Mathematics Lessons Grade 3
3.OA.8.b	Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	**Lesson 18:** Solve Two-Step Word Problems Using the Four Operations **Supporting Content**: **Math in Action**: pp. 442–449
3.OA.9	Identify and extend arithmetic patterns (including patterns in the addition table or multiplication table).	**Lesson 13:** *Understand* Patterns
3.NBT	**Number and Operations in Base Ten**	
	Use place value understanding and properties of operations to perform multi-digit arithmetic.	
3.NBT.1	Use place value understanding to round whole numbers to the nearest 10 or 100.	**Lesson 1:** Use Place Value to Round Numbers **Supporting Content:** Lesson 2: Add Three-Digit Numbers; Lesson 3: Subtract Three-Digit Numbers; Lesson 18: Solve Two-Step Word Problems Using the Four Operations **Math in Action:** pp. 76–83
3.NBT.2	Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	**Lesson 2:** Add Three-Digit Numbers **Lesson 3:** Subtract Three-Digit Numbers **Supporting Content:** Lesson 18: Solve Two-Step Word Problems Using the Four Operations; Lesson 28: Liquid Volume; Lesson 29: Mass; Lesson 32: Area and Perimeter of Shapes **Math in Action:** pp. 76–83, 442–449, 660–667, 754–761
3.NBT.3	Multiply one-digit whole numbers by multiples of 10 in the range 10–90 using strategies based on place value and properties of operations. *e.g., 9 × 80, 5 × 60*	**Lesson 9:** Use Place Value to Multiply **Supporting Content:** **Math in Action:** pp. 76–83, 284–291
3.NBT.4a	Understand that the digits of a four-digit number represent amounts of thousands, hundreds, tens, and ones. *e.g., 3,245 equals 3 thousands, 2 hundreds, 4 tens, and 5 ones*	**See Grade 4:** **Lesson 1:** Place Value *Note: The lesson cited includes numbers up to 999,999.*

New York State Next Generation Mathematics Learning Standards Grade 3		i-Ready Classroom Mathematics Lessons Grade 3
3.NBT.4b	Read and write four-digit numbers using base-ten numerals, number names, and expanded form. *e.g., The number 3,245 in expanded form can be written as* *3,245 = 3,000 + 200 + 40 + 5.*	**See Grade 4:** **Lesson 1:** Place Value **Supporting Content:** Lesson 2: Compare Whole Numbers **Math in Action:** pp. 92–99 *Note: The lessons cited include numbers up to 999,999.*
3.NF	**Number and Operations — Fractions**	
	Develop understanding of fractions as numbers.	
3.NF.1	Understand a unit fraction, $1/b$, is 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 $1/b$.	**Lesson 20:** *Understand* What a Fraction Is **Supporting Content:** Lesson 21: *Understand* Fractions on a Number Line; Lesson 22: *Understand* Equivalent Fractions; Lesson 24: *Understand* Comparing Fractions; Lesson 33: Partition Shapes into Parts with Equal Areas **Math in Action:** pp. 572–579, 754–761
3.NF.2	Understand a fraction as a number on the number line; represent fractions on a number line.	
3.NF.2.a	Represent a fraction $1/b$ on a number line 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 starting at 0 locates the number $1/b$ on the number line.	**Lesson 21:** *Understand* Fractions on a Number Line **Supporting Content:** Lesson 22: *Understand* Equivalent Fractions; Lesson 23: Find Equivalent Fractions; Lesson 24: *Understand* Comparing Fractions; Lesson 25: Use Symbols to Compare Fractions; Lesson 26: Measure Length and Plot Data on Line Plots **Math in Action:** pp. 572–579

New York State Next Generation Mathematics Learning Standards Grade 3		i-Ready Classroom Mathematics Lessons Grade 3
3.NF.2.b	Represent a fraction *a /b* on a number line 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.	**Lesson 21:** *Understand* Fractions on a Number Line **Supporting Content:** Lesson 22: *Understand* Equivalent Fractions; Lesson 23: Find Equivalent Fractions; Lesson 24: *Understand* Comparing Fractions; Lesson 25: Use Symbols to Compare Fractions; Lesson 26: Measure Length and Plot Data on Line Plots **Math in Action**: pp. 572–579
3.NF.3	Explain equivalence of fractions and compare fractions by reasoning about their size.	
3.NF.3.a	Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.	**Lesson 22:** *Understand* Equivalent Fractions **Supporting Content:** Lesson 23: Find Equivalent Fractions **Math in Action:** pp. 572–579
3.NF.3b	Recognize and generate equivalent fractions. Explain why the fractions are equivalent. *e.g., 1/2 = 2/4; 4/6 = 2/3* *e.g., using a visual fraction model*	**Lesson 23:** Find Equivalent Fractions **Supporting Content**: Lesson 25: Use Symbols to Compare Fractions; Lesson 33: Partition Shapes into Parts with Equal Areas **Math in Action:** pp. 572–579
3.NF.3.c	Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *e.g., Express 3 in the form 3 = 3/1, recognize that 6/3 = 2, and locate 4/4 and 1 at the same point on a number line.*	**Lesson 23:** Find Equivalent Fractions **Supporting Content**: Lesson 22: *Understand* Equivalent Fractions
3.NF.3.d	Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons rely on the two fractions referring to the same whole. Record results of comparisons with the symbols >, =, or <, and justify the conclusions. *e.g., using a visual fraction model*	**Lesson 24:** *Understand* Comparing Fractions **Lesson 25:** Use Symbols to Compare Fractions **Supporting Content:** Lesson 33: Partition Shapes into Parts with Equal Areas **Math in Action:** pp. 572–579

New York State Next Generation Mathematics Learning Standards Grade 3		i-Ready Classroom Mathematics Lessons Grade 3
3.MD	**Measurement and Data**	
	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.	
3.MD.1	Tell and write time to the nearest minute and measure time intervals in minutes. Solve one-step word problems involving addition and subtraction of time intervals in minutes. *e.g., representing the problem on a number line or other visual model*	**Lesson 27:** Time **Supporting Content:** **Math in Action:** pp. 660–667
3.MD.2a	Measure and estimate liquid volumes and masses of objects using grams (g), kilograms (kg), and liters (l).	**Lesson 28:** Liquid Volume **Lesson 29:** Mass **Supporting Content:** **Math in Action:** pp. 660–667
3.MD.2b	Add, subtract, multiply, or divide to solve one-step word problems involving masses or liquid volumes that are given in the same units. *e.g., using drawings (such as a beaker with a measurement scale) to represent the problem*	**Lesson 28:** Liquid Volume **Lesson 29:** Mass **Supporting Content:** **Math in Action:** pp. 660–667
	Represent and interpret data.	
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 a scaled piccture graph or a scaled bar graph. *e.g., Draw a bar graph in which each square in the bar graph might represent 5 pets.*	**Lesson 19:** Scaled Graphs
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.	**Lesson 26:** Measure Length and Plot Data on Line Plots

New York State Next Generation Mathematics Learning Standards Grade 3		i-Ready Classroom Mathematics Lessons Grade 3
	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.	
3.MD.5	Recognize area as an attribute of plane figures and understand concepts of area measurement.	
3.MD.5.a	Recognize 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.	**Lesson 14:** *Understand* Area **Supporting Content**: **Math in Action**: pp. 754–761
3.MD.5.b	Recognize 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.	**Lesson 14:** *Understand* Area **Supporting Content**: **Math in Action**: pp. 754–761
3.MD.6	Measure areas by counting unit squares.	**Lesson 14:** *Understand* Area **Supporting Content:** Lesson 15: Multiply to Find Area **Math in Action:** pp. 754–761
3.MD.7	Relate area to the operations of multiplication and addition.	
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.	**Lesson 15:** Multiply to Find Area **Supporting Content:** Lesson 16: Add Areas; Lesson 17: Solve One-Step Word Problems Using Multiplication and Division; Lesson 32: Area and Perimeter of Shapes **Math in Action**: pp. 754–761
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, and represent whole-number products as rectangular areas in mathematical reasoning.	**Lesson 15:** Multiply to Find Area **Supporting Content:** Lesson 16: Add Areas; Lesson 17: Solve One-Step Word Problems Using Multiplication and Division; Lesson 32: Area and Perimeter of Shapes **Math in Action:** pp. 754–761

New York State Next Generation Mathematics Learning Standards Grade 3		i-Ready Classroom Mathematics Lessons Grade 3
3.MD.7.c	Use tiling to show in a concrete case that the area of a rectangle with whole-number side length a and side length $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.	**Lesson 16:** Add Areas
3.MD.7.d	Recognize area as additive. Find areas of figures composed of non-overlapping rectangles, and apply this technique to solve real world problems.	**Lesson 16:** Add Areas
	Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.	
3.MD.8a	Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths or finding an unknown side length given the perimeter and other side lengths.	**Lesson 32:** Area and Perimeter of Shapes **Supporting Content:** **Math in Action**: pp. 754–761
3.MD.8b	Identify rectangles with the same perimeter and different areas or with the same area and different perimeters.	**Lesson 32:** Area and Perimeter of Shapes **Supporting Content:** **Math in Action**: pp. 754–761
3.G	**Geometry**	
	Reason with shapes and their attributes.	
3.G.1	Recognize and classify polygons based on the number of sides and vertices (triangles, quadrilaterals, pentagons, and hexagons). Identify shapes that do not belong to one of the given subcategories.	**Lesson 30:** Understand Categories of Shapes **Lesson 31:** Classify Quadrilaterals **Supporting Content:** Lesson 32: Area and Perimeter of Shapes **Math in Action**: pp. 754–761
3.G.2	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *e.g., Partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.*	**Lesson 33:** Partition Shapes into Parts with Equal Areas **Supporting Content:** Lesson 20: *Understand* What a Fraction Is **Math in Action**: pp. 754–761

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to the

New York State Next Generation Mathematics Learning Standards

Grade 4

New York State Next Generation Mathematics Learning Standards Grade 4	i-Ready Classroom Mathematics Lessons Grade 4
Grade 4	
4.OA **Operations and Algebraic Thinking**	
Use the four operations with whole numbers to solve problems.	
4.OA.1 Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations. *e.g.,* • *Interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 or 7 times as many as 5.* • *Represent "Four times as many as eight is thirty two" as an equation, 4 × 8 = 32.*	**Lesson 6:** *Understand* Multiplication as a Comparison **Supporting Content:** Lesson 7: Multiplication and Division in Word Problems **Math in Action**: pp. 214–221
4.OA.2 Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison. Use drawings and equations with a symbol for the unknown number to represent the problem.	**Lesson 7:** Multiplication and Division in Word Problems **Supporting Content:** Lesson 6: *Understand* Multiplication as a Comparison; Lesson 10: Model and Solve Multi-Step Problems; Lesson 28: Problems About Time and Money; Lesson 29: Problems About Length, Liquid Volume, Mass, and Weight **Math in Action**: pp. 214–221
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.	**Lesson 10:** Model and Solve Multi-Step Problems **Supporting Content:** Lesson 28: Problems About Time and Money; Lesson 29: Problems About length, Liquid Volume, Mass, and Weight **Math in Action**: pp. 214–221
4.OA.3.a Represent these problems using equations or expressions with a letter standing for the unknown quantity.	**Lesson 10:** Model and Solve Multi-Step Problems **Supporting Content:** Lesson 28: Problems About Time and Money; Lesson 29: Problems About length, Liquid Volume, Mass, and Weight **Math in Action**: pp. 214–221

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4.OA.3.b	Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	**Lesson 10:** Model and Solve Multi-Step Problems **Supporting Content:** Lesson 28: Problems About Time and Money; Lesson 29: Problems About length, Liquid Volume, Mass, and Weight **Math in Action**: pp. 214–221
	Gain familiarity with factors and multiples.	
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 given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.	**Lesson 8:** Multiples and Factors **Supporting Content:** Lesson 9: Number and Shape Patterns **Math in Action**: pp. 214–221, 350–357
	Generate and analyze patterns.	
4.OA.5	Generate a number or shape pattern that follows a given rule. Identify and informally explain apparent features of the pattern that were not explicit in the rule itself. *e.g., Given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*	**Lesson 9:** Number and Shape Patterns
4.NBT	**Number and Operations in Base Ten**	
	Generalize place value understanding for multi-digit whole numbers.	
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. *e.g., Recognize that 70 × 10 = 700 (and, therefore, 700 ÷ 10 = 70) by applying concepts of place value, multiplication, and division.*	**Lesson 1:** *Understand* Place Value **Supporting Content:** Lesson 2: Compare Whole Numbers; Lesson 11: Multiply by One-Digit Numbers

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4.NBT.2a	Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. *e.g., 50,327 = 50,000 + 300 + 20 + 7*	**Lesson 1:** *Understand* Place Value **Supporting Content:** **Math in Action**: pp. 92–99
4.NBT.2b	Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	**Lesson 1:** *Understand* Place Value **Lesson 2:** Compare Whole Numbers **Supporting Content:** **Math in Action**: pp. 92–99
4.NBT.3	Use place value understanding to round multi-digit whole numbers to any place.	**Lesson 3:** Round Whole Numbers **Supporting Content:** Lesson 4: Add Whole Numbers; Lesson 5: Subtract Whole Numbers; Lesson 11: Multiply by One-Digit Numbers **Math in Action**: pp. 92–99
	Use place value understanding and properties of operations to perform multi-digit arithmetic.	
4.NBT.4	Fluently add and subtract multi-digit whole numbers using the standard algorithm.	**Lesson 4:** Add Whole Numbers **Lesson 5:** Subtract Whole Numbers **Supporting Content:** Lesson 28: Problems About Time and Money; Lesson 29: Problems About Length, Liquid Volume, Mass, and Weight **Math in Action**: pp. 92–99, 214–221
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.	**Lesson 11:** Multiply by One-Digit Numbers **Lesson 12:** Multiply by Two-Digit Numbers **Supporting Content:** Lesson 13: Use Mutiplication to Convert Measurements; Lesson 14: Divide Three-Digit Numbers; Lesson 15: Divide Four-Digit Numbers; Lesson 16: Find Perimeter and Area; Lesson 28: Problems About Time and Money; Lesson 29: Problems About Length, Liquid Volume, Mass, and Weight **Math in Action**: pp. 350–357

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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.	**Lesson 14:** Divide Three-Digit Numbers **Lesson 15:** Divide Four-Digit Numbers **Supporting Content**: Lesson 10: Model and Solve Multi-Step Problems; Lesson 16: Find Perimeter and Area; Lesson 28: Problems About Time and Money; Lesson 29: Problems About Length, Liquid, Liquid Volume, Mass, and Weight **Math in Action**: pp. 350–357
4.NF	**Number and Operations — Fractions**	
	Extend understanding of fraction equivalence and ordering.	
4.NF.1	Explain why a fraction a/b is equivalent to a fraction $a \times n/b \times n$ 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.	**Lesson 17:** *Understand* Equivalent Fractions **Supporting Content:** Lesson 18: Compare Fractions; Lesson 25: Fractions as Tenths and Hundredths **Math in Action**: pp. 628–635
4.NF.2	Compare two fractions with different numerators and different denominators. 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 creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2* *e.g., using a visual fraction model*	**Lesson 18:** Compare Fractions **Supporting Content:** **Math in Action**: pp. 628–635

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	Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	
4.NF.3	Understand a fraction a/b with $a > 1$ as a sum of fractions $(1/b)$.	
4.NF.3.a	Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	**Lesson 19:** *Understand* Fraction Addition and Subtraction **Supporting Content:** Lesson 20: Add and Subtract Fractions; Lessons 21: Add and Subtract Mixed Numbers **Math in Action**: pp. 628–635
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., Justify decompositions by using a visual fraction model such as, but not limited to:* • *3/8 = 1/8 + 1/8 + 1/8* • *3/8 = 1/8 + 2/8* • *2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8*	**Lesson 20:** Add and Subtract Fractions **Supporting Content:** Lesson 21: Add and Subtract Mixed Numbers **Math in Action**: pp. 628–635
4.NF.3.c	Add and subtract mixed numbers with like denominators. *e.g., replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction*	**Lesson 21:** Add and Subtract Mixed Numbers **Supporting Content:** Lesson 22: Add and Subtract Fractions in Line Plots; Lesson 29: Problems About Length, Liquid Volume, Mass, and Weight **Math in Action**: pp. 628–635
4.NF.3.d	Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators. *e.g., using visual fraction models and equations to represent the problem*	**Lesson 20:** Add and Subtract Fractions **Supporting Content:** Lesson 21: Add and Subtract Mixed Numbers; Lesson 22: Add and Subtract Fractions in Line Plots; Lesson 29: Problems About Length, Liquid Volume, Mass, and Weight **Math in Action**: pp. 628–635

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4.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.	
4.NF.4.a	Understand a fraction a/b as a multiple of $1/b$. *e.g., Use a visual fraction model to represent 5/4 as the product 5 × 1/4, recording the conclusion with the equation 5/4 = 5 × 1/4.*	**Lesson 23:** *Understand* Fraction Multiplication **Supporting Content:** Lesson 24: Multiply Fractions by Whole Numbers **Math in Action**: pp. 628–635
4.NF.4.b	Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a whole number by a fraction. *e.g., use a visual fraction model to express 3 × 2/5 as 6 × 1/5, recognizing this product as 6/5.* *In general, n × a/b = (n × a)/b.*	**Lesson 23:** *Understand* Fraction Multiplication **Supporting Content:** Lesson 24: Multiply Fractions by Whole Numbers **Math in Action**: pp. 628–635
4.NF.4.c	Solve word problems involving multiplication a whole number by a fraction. *e.g., using visual fraction models and equations to represent the problem* *e.g., If each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*	**Lesson 24:** Multiply Fractions by Whole Numbers **Supporting Content:** **Math in Action**: pp. 628–635
	Understand decimal notation for fractions, and compare decimal fractions.	
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. *e.g., Express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*	**Lesson 25:** Fractions as Tenths and Hundreths **Supporting Content:** **Math in Action**: pp. 628–635
4.NF.6	Use decimal notation for fractions with denominators 10 or 100. *e.g.,* • *Rewrite 0.62 as 62/100 or 62/100 as 0.62.* • *Describe a length as 0.62 meters.* • *Locate 0.62 on a number line.*	**Lesson 26:** Relate Decimals and Fractions **Supporting Content:** **Math in Action**: pp. 628–635

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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., using a visual model*	**Lesson 27:** Compare Decimals **Supporting Content:** **Math in Action**: pp. 628–635
4.MD	**Measurement and Data**	
	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	
4.MD.1.i	Know relative sizes of measurement units: ft., in.; km, m, cm. *e.g., An inch is about the distance from the tip of your thumb to your first knuckle.* *A foot is the length of two dollar bills.* *A meter is about the height of a kitchen counter.* *A kilometer is 2 ½ laps around most tracks.*	**Lesson 13:** Use Multiplication to Convert Measurements **Supporting Content:** Lesson 28: Problems About Time and Money; Lesson 29: Problems About Length, Liquid Volume, Mass, and Weight
4.MD.1.ii	Know the conversion factor and use it to convert measurements in a larger unit in terms of a smaller unit: ft., in.; km, m, cm; hr., min., sec. *e.g., Know that 1 ft. is 12 times as long as 1 in. and express the length of a 4 ft. snake as 48 in.*	**Lesson 13:** Use Multiplication to Convert Measurements **Supporting Content:** Lesson 28: Problems About Time and Money; Lesson 29: Problems About Length, Liquid Volume, Mass, and Weight
4.MD.1.iii	Given the conversion factor, convert all other measurements within a single system of measurement from a larger unit to a smaller unit. *e.g., Given the conversion factors, convert kilograms to grams, pounds to ounces, or liters to milliliters.*	**Lesson 13:** Use Multiplication to Convert Measurements **Supporting Content:** Lesson 28: Problems About Time and Money; Lesson 29: Problems About Length, Liquid Volume, Mass, and Weight
4.MD.1.iv	Record measurement equivalents in a two-column table. *e.g., Generate a conversion table for feet and inches.*	**Lesson 13:** Use Multiplication to Convert Measurements **Supporting Content:** Lesson 28: Problems About Time and Money; Lesson 29: Problems About Length, Liquid Volume, Mass, and Weight

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4.MD.2	Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money.	
4.MD.2.a	Solve problems involving fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit.	**Lesson 28:** Problems About Time and Money **Lesson 29:** Problems About Length, Liquid Volume, Mass, and Weight
4.MD.2.b	Represent measurement quantities using diagrams that feature a measurement scale, such as number lines.	**Lesson 28:** Problems About Time and Money **Lesson 29:** Problems About Length, Liquid Volume, Mass, and Weight
4.MD.3	Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *e.g., Find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*	**Lesson 16:** Find Perimeter and Area **Supporting Content:** **Math in Action**: pp. 350–357
	Represent and interpret data.	
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. *e.g., Given measurement data on a line plot, find and interpret the difference in length between the longest and shortest specimens in an insect collection.*	**Lesson 22:** Add and Subtract Fractions in Line Plots **Supporting Content:** **Math in Action**: pp. 628–635
	Geometric measurement: understand concepts of angle and measure angles.	
4.MD.5	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:	**Lesson 30:** Points, Lines, Rays, and Angles **Lesson 31:** Angles **Supporting Content:** Lesson 32: Add and Subtract with Angles; Lesson 33: Classify Two-Dimensional Figures **Math in Action**: pp. 760–767

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4.MD.5.a	Recognize 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.	**Lesson 31:** Angles **Supporting Content:** Lesson 32: Add and Subtract with Angles
4.MD.5.b	Recognize an angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.	**Lesson 31:** Angles **Supporting Content:** Lesson 32: Add and Subtract with Angles
4.MD.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	**Lesson 31:** Angles **Supporting Content:** **Math in Action**: pp. 760–767
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., using an equation with a symbol for the unknown angle measure; such as, in the rectangle below, angle CAD could be found by : 75 + x = 90 or 90 - 75 = ?*	**Lesson 32:** Add and Subtract with Angles **Supporting Content:** **Math in Action**: pp. 760–767
4.G	**Geometry**	
	Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	
4.G.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	**Lesson 30:** Points, Lines, Rays, and Angles **Supporting Content:** Lesson 33: Classify Two-Dimensional Figures **Math in Action**: pp. 760–767

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4.G.2a	Identify and name triangles based on angle size (right, obtuse, acute).	**Lesson 33:** Classify Two-Dimensional Figures **Supporting Content:** Lesson 30 Points, Lines, Rays, and Angles; Lesson 31 Angles **Math in Action**: pp. 760–767
4.G.2b	Identify and name all quadrilaterals with 2 pairs of parallel sides as parallelograms.	**See Grade 3:** **Lesson 31:** Classify Quadrilaterals **See Grade 4:** **Supporting Content:** Lesson 30 Points, Lines, Rays, and Angles; Lesson 33: Classify Two-Dimensional Figures **Math in Action**: pp. 760–767
4.G.2c	Identify and name all quadrilaterals with four right angles as rectangles.	**See Grade 3:** **Lesson 31:** Classify Quadrilaterals **See Grade 4:** **Supporting Content:** Lesson 30 Points, Lines, Rays, and Angles; Lesson 33: Classify Two-Dimensional Figures **Math in Action**: pp. 760–767
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.	**Lesson 34:** Symmetry **Supporting Content:** **Math in Action**: pp. 760–767

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Grade 5

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Grade 5	
5.OA	**Operations and Algebraic Thinking**
	Write and interpret numerical expressions.
5.OA.1	Apply the order of operations to evaluate numerical expressions. *e.g.,* • *6 + 8 ÷ 2* • *(6 + 8) ÷ 2*	**Lesson 30:** Evaluate, Write, and Interpret Expressions **Supporting Content:** Lesson 3: Find Volume Using Formulas; Lesson 8: Read and Write Decimals **Math in Action**: pp. 702–709
5.OA.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *e.g., Express the calculation "add 8 and 7, then multiply by 2" as (8 + 7) × 2. Recognize that 3 × (18,932 + 921) is three times as large as 18,932 + 921, without having to calculate the indicated sum or product.*	**Lesson 30:** Evaluate, Write, and Interpret Expressions **Supporting Content:** **Math in Action**: pp. 702–709
	Analyze patterns and relationships.
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. *e.g., Given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*	**Lesson 33:** Analyze Patterns and Relationships

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5.NBT	**Number and Operations in Base Ten**	
	Understand the place value system.	
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.	**Lesson 6:** *Understand* Decimal Place Value **Supporting Content:** Lesson 7: *Understand* Powers of 10; Lesson 15: Multiply a Decimal by a Whole Number; Lesson 16: Multiply Decimals; Lesson 17: Divide Decimals **Math in Action**: pp. 292–299
5.NBT.2	Use whole-number exponents to denote powers of 10. 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.	**Lesson 7:** *Understand* Powers of 10 **Supporting Content:** Lesson 25: Convert Measurement Units; Lesson 26: Solve Word Problems Involving Conversions **Math in Action**: pp. 292–299
5.NBT.3	Read, write, and compare decimals to thousandths.	
5.NBT.3.a	Read and write decimals to thousandths using base-ten numerals, number names, and expanded form. *e.g.,* • *47.392 = 4 × 10 + 7 × 1 + 3 × 1/10 + 9 × 1/100 + 2 × 1/1000* • *47.392 = (4 × 10) + (7 × 1) + (3 × 1/10) + (9 × 1/100) + (2 × 1/1000)* • *47.392 = (4 × 10) + (7 × 1) + (3 × 0.1) + (9 × 0.01) + (2 × 0.001)*	**Lesson 8:** Read and Write Decimals **Supporting Content:** Lesson 6: *Understand* Decimal Place Value **Math in Action**: pp. 292–299
5.NBT.3.b	Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	**Lesson 9:** Compare and Round Decimals **Supporting Content:** Lesson 8: Read and Write Decimals **Math in Action**: pp. 292–299
5.NBT.4	Use place value understanding to round decimals to any place.	**Lesson 9:** Compare and Round Decimals **Supporting Content:** Lesson 14: Add and Subtract in Word Problems **Math in Action**: pp. 292–299

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Perform operations with multi-digit whole numbers and with decimals to hundredths.		
5.NBT.5	Fluently multiply multi-digit whole numbers using a standard algorithm.	**Lesson 4:** Multiply Multi-Digit Numbers **Supporting Content:** Lesson 3: Find Volume Using Formulas; Lesson 26: Solve Word Problems Involving Conversions **Math in Action**: pp. 104–111
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.	**Lesson 5:** Divide Multi-Digit Numbers **Supporting Content:** **Math in Action**: pp. 104–111
5.NBT.7	Using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between operations: • add and subtract decimals to hundredths; • multiply and divide decimals to hundredths. Relate the strategy to a written method and explain the reasoning used.	**Lesson 10:** Add Decimals **Lesson 11:** Subtract Decimals **Lesson 14:** Add and Subtract in Word Problems **Lesson 15:** Multiply a Decimal by a Whole Number **Lesson 16:** Multiply Decimals **Lesson 17:** Divide Decimals **Supporting Content:** **Math in Action**: pp. 292–299, 492–499
5.NF	**Number and Operations — Fractions**	
Use equivalent fractions as a strategy to add and subtract fractions.		
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. *e.g.,* • *1/3 + 2/9 = 3/9 + 2/9 = 5/9* • *2/3 + 5/4 = 8/12 + 15/12 = 23/12*	**Lesson 12:** Add Fractions **Lesson 13:** Subtract Fractions **Supporting Content:** Lesson 14: Add and Subtract in Word Problems; Lesson 27: Make Line Plots and Interpret Data **Math in Action**: pp. 292–299

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5.NF.2	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *e.g., using visual fraction models or equations to represent the problem* *e.g., Recognize an incorrect result 2/5 + 1/2 = 3/7 by observing that 3/7 < 1/2.*	**Lesson 12:** Add Fractions **Lesson 13:** Subtract Fractions **Lesson 14:** Add and Subtract in Word Problems **Supporting Content:** Lesson 27: Make Line Plots and Interpret Data **Math in Action**: pp. 292–299
	Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	
5.NF.3	Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers. *e.g., Interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4.* *e.g., using visual fraction models or equations to represent the problem* *e.g., If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*	**Lesson 18:** Fractions as Division **Supporting Content:** Lesson 25: Convert Measurement Units; Lesson 26: Solve Word Problems Involving Conversions **Math in Action**: pp. 492–499

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5.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	
5.NF.4.a	Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. *e.g., Use a visual fraction model to show 2/3 × 4 = 8/3, and create a story context for this equation. Do the same with 2/3 × 4/5 = 8/15.*	**Lesson 19:** *Understand* Multiplication by a Fraction **Supporting Content:** Lesson 20: Multiply Fractions to Find Area; Lesson 22: Multiply Fractions in Word Problems **Math in Action**: pp. 492–499
5.NF.4.b	Find the area of a rectangle with fractional side lengths by tiling it with rectangles 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.	**Lesson 20:** Multiply Fractions to Find Area **Supporting Content:** Lesson 19: *Understand* Multiplication by a Fraction; Lesson 22: Multiply Fractions in Word Problems **Math in Action**: pp. 492–499
5.NF.B.5	Interpret multiplication as scaling (resizing).	
5.NF.5.a	Compare 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. *e.g., In the case of 10 × 1/2 = 5, 5 is half of 10 and 5 is 10 times larger than 1/2.*	**Lesson 21:** *Understand* Multiplication as Scaling

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5.NF.5.b	Explain 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). Explain why multiplying a given number by a fraction less than 1 results in a product smaller than the given number. Relate the principle of fraction equivalence $a/b = a/b \times n/n$ to the effect of multiplying a/b by 1. *e.g.,* • *Explain why 4 × 3/2 is greater than 4.* • *Explain why 4 × 1/2 is less than 4.* • *1/3 is equivalent to 2/6 because 1/3 × 2/2 = 2/6*	**Lesson 21:** *Understand* Multiplication as Scaling
5.NF.6	Solve real world problems involving multiplication of fractions and mixed numbers. *e.g., using visual fraction models or equations to represent the problem*	**Lesson 22:** Multiply Fractions in Word Problems **Supporting Content:** Lesson 20: Multiply Fractions to Find Area; Lesson 26: Solve Word Problems Involving Conversions; Lesson 27: Make Line Plots and Interpret Data **Math in Action**: pp. 492–499
5.NF.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.	
5.NF.7.a	Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *e.g., Create a story context for 1/3 ÷ 4 and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 1/3 ÷ 4 = 1/12 because 1/12 × 4 = 1/3.*	**Lesson 23:** *Understand* Division with Unit Fractions **Supporting Content:** Lesson 24: Divide Unit Fractions in Word Problems **Math in Action**: pp. 492–499

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5.NF.7.b	Interpret division of a whole number by a unit fraction, and compute such quotients. *e.g., Create a story context for 4 ÷ 1/5 and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ 1/5 = 20 because 20 × 1/5 = 4.*	**Lesson 23:** *Understand* Division with Unit Fractions **Supporting Content:** Lesson 24: Divide Unit Fractions in Word Problems **Math in Action**: pp. 492–499
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., using visual fraction models and equations to represent the problem e.g., How much chocolate will each person get if 3 people share 1/2 lb. of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?*	**Lesson 24:** Divide Unit Fractions in Word Problems **Supporting Content:** **Math in Action**: pp. 492–499
5.MD	**Measurement and Data**	
	Convert like measurement units within a given measurement system.	
5.MD.1	Convert among different-sized standard measurement units within a given measurement system when the conversion factor is given. Use these conversions in solving multi-step, real world problems.	**Lesson 25:** Convert Measurement Units **Lesson 26:** Solve Word Problems Involving Conversions **Supporting Content:** **Math in Action**: pp. 608–615
	Represent and interpret data.	
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. *e.g., Given different measurements of liquid in identical beakers, make a line plot to display the data and find the total amount of liquid in all of the beakers.*	**Lesson 27:** Make Line Plots and Interpret Data **Supporting Content:** **Math in Action**: pp. 608–615

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	Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.	
5.MD.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement.	
5.MD.3.a	Recognize that 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.	**Lesson 1:** *Understand* Volume **Supporting Content:** Lesson 2: Find Volume Using Unit Cubes **Math in Action**: pp. 104–111
5.MD.3.b	Recognize that 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.	**Lesson 1:** *Understand* Volume **Supporting Content:** Lesson 2: Find Volume Using Unit Cubes **Math in Action**: pp. 104–111
5.MD.4	Measure volumes by counting unit cubes, using cubic cm, cubic in., cubic ft., and improvised units.	**Lesson 2:** Find Volume Using Unit Cubes **Supporting Content:** Lesson 1: *Understand* Volume **Math in Action**: pp. 104–111
5.MD.5	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving 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.	**Lesson 2:** Find Volume Using Unit Cubes **Lesson 3:** Find Volume Using Formulas **Supporting Content:** Lesson 4: Multiply Multi-Digit Numbers; Lesson 5: Divide Multi-Digit Numbers **Math in Action**: pp. 104–111
5.MD.5.b	Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.	**Lesson 3:** Find Volume Using Formulas **Supporting Content:** Lesson 4: Multiply Multi-Digit Numbers **Math in Action**: pp. 104–111

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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.	**Lesson 3:** Find Volume Using Formulas **Supporting Content:** **Math in Action**: pp. 104–111
5.G	**Geometry**	
	Graph points on the coordinate plane to solve real-world and mathematical problems.	
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*	**Lesson 31:** *Understand* the Coordinate Plane **Supporting Content:** Lesson 32: Represent Problems in the Coordinate Plane **Math in Action**: pp. 702–709
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.	**Lesson 32:** Represent Problems in the Coordinate Plane **Supporting Content**: Lesson 31: *Understand* the Coordinate Plane; Lesson 33: Analyze Patterns and Relationships **Math in Action**: pp. 702–709

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	Classify two-dimensional figures into categories based on their properties.	
5.G.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. *e.g., All rectangles have four right angles and squares are rectangles, so all squares have four right angles.*	**Lesson 28:** *Understand* Categories of Two-Dimensional Figures **Supporting Content:** Lesson 29: Classify Two-Dimensional Figures **Math in Action**: pp. 608–615
5.G.4	Classify two-dimensional figures in a hierarchy based on properties.	**Lesson 29:** Classify Two-Dimensional Figures **Supporting Content:** Lesson 28: *Understand* Categories of Two-Dimensional Figures **Math in Action**: pp. 608–615