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**Mathematics**

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# **Pennsylvania Core Standards for Mathematics**



Kindergarten

Pennsylvania Core Standards for Mathematics Kindergarten		i-Ready Classroom Mathematics Lessons Kindergarten
<b>Kindergarten</b>		
<b>CC.2.1.K</b>	<b>Numbers and Operations</b>	
CC.2.1.K.A	Counting & Cardinality	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.1.K.A.1	Know number names and write and recite the count sequence.	<p><b>Lesson 4:</b> Count, Show, and Write Numbers to 5</p> <p><b>Lesson 11:</b> Count, Show, and Write Numbers 6 to 10</p> <p><b>Lesson 16:</b> Count, Read, and Write Numbers 11 to 20</p> <p><b>Lesson 17:</b> Count Within 100</p> <p><b>Supporting Content:</b>  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  <b>Math in Action:</b> pp. 133–136, 333–336, 423–426, 563–566</p>

Pennsylvania Core Standards for Mathematics Kindergarten		i-Ready Classroom Mathematics Lessons Kindergarten
CC.2.1.K.A.2	Apply one-to-one correspondence to count the number of objects.	<p><b>Lesson 3:</b> Sort and Count Objects  <b>Lesson 4:</b> Count, Show, and Write Numbers to 5  <b>Lesson 5:</b> Compare Numbers to 5  <b>Lesson 11:</b> Count, Show, and Write Numbers 6 to 10  <b>Lesson 12:</b> Compare Numbers to 10  <b>Lesson 16:</b> Count, Read, and Write Numbers 11 to 20</p> <p><b>Supporting Content:</b>  Lesson 7: Add Within 5; Lesson 9: Subtract Within 5; Lesson 10: Add and Subtract Within 5; 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  <b>Math in Action:</b> pp. 133–136, 333–336, 423–426, 563–566</p>
CC.2.1.K.A.3	Apply the concept of magnitude to compare numbers and quantities.	<p><b>Lesson 5:</b> Compare Numbers to 5  <b>Lesson 12:</b> Compare Numbers to 10</p> <p><b>Supporting Content:</b>  Lesson 3: Sort and Count Objects  <b>Math in Action:</b> pp. 133–136</p>
CC.2.1.K.B	Number & Operations in Base Ten	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.1.K.B.1	Use place value to compose and decompose numbers within 19.	<p><b>Lesson 23:</b> Compose and Decompose Teen Numbers with Tools and Drawings  <b>Lesson 25:</b> Compose and Decompose Teen Numbers with Symbols</p> <p><b>Supporting Content:</b>  Lesson 14: Compose and Decompose 10  <b>Math in Action:</b> pp. 565–566</p>

Pennsylvania Core Standards for Mathematics Kindergarten		i-Ready Classroom Mathematics Lessons Kindergarten
CC.2.1.K.C	Number & Operations — Fractions	
	<i>Not addressed in Kindergarten.</i>	
<b>CC.2.2.K</b>	<b>Algebraic Concepts</b>	
CC.2.2.K.A	Operations and Algebraic Thinking	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.2.K.A.1	Extend the concepts of putting together and taking apart to add and subtract within 10.	<b>Lesson 7:</b> Add Within 5 <b>Lesson 9:</b> Subtract Within 5 <b>Lesson 10:</b> Add and Subtract Within 5 <b>Lesson 15:</b> Find Number Partners for 10 <b>Lesson 14:</b> Compose and Decompose 10 <b>Lesson 18:</b> Compose and Decompose 6 and 7 <b>Lesson 19:</b> Compose and Decompose 8 and 9 <b>Lesson 20:</b> Add Within 10 <b>Lesson 21:</b> Subtract Within 10 <b>Lesson 22:</b> Add and Subtract to Solve Word Problems  <u><b>Supporting Content:</b></u> <b>Math in Action:</b> pp. 223–226, 423–426, 493–496
<b>CC.2.3.K</b>	<b>Geometry</b>	
CC.2.3.K.A	Geometry	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.3.K.A.1	Identify and describe two- and three-dimensional shapes.	<b>Lesson 1:</b> Describe Position <b>Lesson 6:</b> Three-Dimensional Shapes and Weight <b>Lesson 8:</b> Two-Dimensional Shapes <b>Lesson 24:</b> Build with Shapes  <u><b>Supporting Content:</b></u> Lesson 13: Compose Shapes <b>Math in Action:</b> pp. 63–66, 223–226, 563–566
CC.2.3.K.A.2	Analyze, compare, create, and compose two- and three-dimensional shapes.	<b>Lesson 6:</b> Three-Dimensional Shapes and Weight <b>Lesson 8:</b> Two-Dimensional Shapes <b>Lesson 13:</b> Compose Shapes <b>Lesson 24:</b> Build with Shapes  <u><b>Supporting Content:</b></u> <b>Math in Action:</b> pp. 223–226, 333–336, 563–566

Pennsylvania Core Standards for Mathematics Kindergarten		i-Ready Classroom Mathematics Lessons Kindergarten
<b>CC.2.4.K</b>	<b>Measurement, Data, and Probability</b>	
CC.2.4.K.A	Measurement and Data	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.4.K.A.1	Describe and compare measurable attributes of length, area, weight, and capacity of everyday objects.	<b>Lesson 2:</b> Describe and Compare Length and Height <b>Lesson 6:</b> Three-Dimensional Shapes and Weight  <u><b>Supporting Content:</b></u> Lesson 3: Sort and Count Objects
CC.2.4.K.A.4	Classify objects and count the number of objects in each category.	<b>Lesson 3:</b> Sort and Count Objects  <u><b>Supporting Content:</b></u> 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 <b>Math in Action:</b> pp. 63–66, 133–136
<p><i>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.</i></p>		

The logo for i-Ready Classroom Mathematics. It features a small 3D cube icon with orange, blue, and green faces to the left of the text. The text "i-Ready Classroom" is in black, and "Mathematics" is in a larger green font.

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# Pennsylvania Core Standards for Mathematics

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Grade 1

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Pennsylvania Core Standards for Mathematics Grade 1		i-Ready Classroom Mathematics Lessons Grade 1
<b>Grade 1</b>		
<b>CC.2.1.1</b>	<b>Numbers and Operations</b>	
CC.2.1.1.A	Counting & Cardinality	
	<i>Not addressed in Grade 1.</i>	
CC.2.1.1.B	Number & Operations in Base Ten	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.1.1.B.1	Extend the counting sequence to read and write numerals to represent objects.	<b>Lesson 16:</b> Numbers to 120  <b>Supporting Content:</b> Lesson 6: Teen Numbers; Lesson 13: Collect and Compare Data; Lesson 27: Money <b>Math in Action:</b> pp. 441–444
CC.2.1.1.B.2	Use place value concepts to represent amounts of tens and ones and to compare two digit numbers.	<b>Lesson 6:</b> Teen Numbers <b>Lesson 15:</b> Tens and Ones <b>Lesson 17:</b> Compare Numbers  <b>Supporting Content:</b> Lesson 9: Use a Ten to Subtract; Lesson 16: Numbers to 120; 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 <b>Math in Action:</b> pp. 253–256, 441–444
CC.2.1.1.B.3	Use place value concepts and properties of operations to add and subtract within 100.	<b>Lesson 16:</b> Numbers to 120 <b>Lesson 18:</b> Add and Subtract Tens <b>Lesson 19:</b> Addition with Two-Digit Numbers <b>Lesson 20:</b> Add Two-Digit and One-Digit Numbers <b>Lesson 21:</b> Add Two-Digit Numbers  <b>Supporting Content:</b> Lesson 17: Compare Numbers; Lesson 27: Money <b>Math in Action:</b> pp. 547–550

Pennsylvania Core Standards for Mathematics Grade 1		i-Ready Classroom Mathematics Lessons Grade 1
CC.2.1.1.C	Number & Operations - Fractions	
	<i>Not addressed in Grade 1.</i>	
<b>CC.2.2.1</b>	<b>Algebraic Concepts</b>	
CC.2.2.1.A	Operations and Algebraic Thinking	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.2.1.A.1	Represent and solve problems involving addition and subtraction within 20.	<b>Lesson 1:</b> Number Partners for 10 <b>Lesson 2:</b> Add and Subtract Within 10 <b>Lesson 3:</b> Use Counting Strategies to Add and Subtract <b>Lesson 4:</b> Use Addition to Subtract <b>Lesson 5:</b> Solve Word Problems to 10 <b>Lesson 7:</b> Add Three Numbers <b>Lesson 8:</b> Make a Ten to Add <b>Lesson 9:</b> Use a Ten to Subtract <b>Lesson 10:</b> Doubles and Near Doubles <b>Lesson 11:</b> Solve Word Problems to 20 <b>Lesson 12:</b> Solve Compare Problems  <u><b>Supporting Content:</b></u> Lesson 13: Collect and Compare Data; Lesson 14: True and False Equations <b>Math in Action:</b> pp. 123–126, 253–256, 359–362
CC.2.2.1.A.2	Understand and apply properties of operations and the relationship between addition and subtraction.	<b>Lesson 1:</b> Number Partners for 10 <b>Lesson 4:</b> Use Addition to Subtract <b>Lesson 5:</b> Solve Word Problems to 10 <b>Lesson 7:</b> Add Three Numbers <b>Lesson 11:</b> Solve Word Problems to 20 <b>Lesson 14:</b> True and False Equations  <u><b>Supporting Content:</b></u> Lesson 8: Make a Ten to Add; Lesson 9: Use a Ten to Subtract; Lesson 10: Doubles and Near Doubles; Lesson 12: Solve Compare Problems; Lesson 17: Compare Numbers; Lesson 20: Add Two-Digit and One-Digit Numbers; Lesson 21: Add Two-Digit Numbers <b>Math in Action:</b> pp. 253–256



Pennsylvania Core Standards for Mathematics Grade 1		i-Ready Classroom Mathematics Lessons Grade 1
<b>CC.2.3.1</b>	<b>Geometry</b>	
CC.2.3.1.A	Geometry	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.3.1.A.1	Compose and distinguish between two- and three-dimensional shapes based on their attributes.	<b>Lesson 22:</b> Shapes  <b>Supporting Content:</b> <b>Math in Action:</b> pp. 701–704
CC.2.3.1.A.2	Use the understanding of fractions to partition shapes into halves and quarters.	<b>Lesson 23:</b> Break Shapes into Equal Parts  <b>Supporting Content:</b> Lesson 24: Tell Time <b>Math in Action:</b> pp. 701–704
<b>CC.2.4.1</b>	<b>Data Analysis and Probability</b>	
CC.2.4.1.A	Measurement and Data	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.4.1.A.1	Order lengths and measure them both indirectly and by repeating length units.	<b>Lesson 25:</b> Compare and Order Lengths <b>Lesson 26:</b> Measure Length  <b>Supporting Content:</b> <b>Math in Action:</b> pp. 701–704
CC.2.4.1.A.2	Tell and write time to the nearest half hour using both analog and digital clocks.	<b>Lesson 24:</b> Tell Time
CC.2.4.1.A.4	Represent and interpret data using tables/charts.	<b>Lesson 13:</b> Collect and Compare Data  <b>Supporting Content:</b> Lesson 14: True and False Equations; Lesson 17: Compare Numbers <b>Math in Action:</b> pp. 253–256, 359–362, 441–444, 547–550, 701–704

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# Pennsylvania Core Standards in Mathematics

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Grade 2

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Pennsylvania Core Standards in Mathematics Grade 2		i-Ready Classroom Mathematics Lessons Grade 2
<b>Grade 2</b>		
<b>CC.2.1.2</b>	<b>Numbers and Operations</b>	
CC.2.1.2.B	Number & Operations in Base Ten	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.1.2.B.1	Use place-value concepts to represent amounts of tens and ones and to compare three digit numbers.	<b>Lesson 12:</b> <i>Understand</i> Three-Digit Numbers  <u><b>Supporting Content:</b></u> Lesson 13: Read and Write Three-Digit Numbers <b>Math in Action:</b> pp. 492–499
CC.2.1.2.B.2	Use place-value concepts to read, write and skip count to 1000.	<b>Lesson 13:</b> Read and Write Three-Digit Numbers <b>Lesson 15:</b> Mental Addition and Subtraction  <u><b>Supporting Content:</b></u> Lesson 10: Solve Word Problems Involving Money; Lesson 11: Tell and Write Time; Lesson 14: Compare Three-Digit Numbers; Lesson 16: Add Three-Digit Numbers; Lesson 17: Subtract Three-Digit Numbers; Lesson 31: Add Using Arrays <b>Math in Action:</b> pp. 302–309, 492–499
CC.2.1.2.B.3	Use place-value understanding and properties of operations to add and subtract within 1000.	<b>Lesson 6:</b> Add Two-Digit Numbers <b>Lesson 7:</b> Subtract Two-Digit Numbers <b>Lesson 8:</b> Use Addition and Subtraction Strategies with Two-Digit Numbers <b>Lesson 15:</b> Mental Addition and Subtraction <b>Lesson 16:</b> Add Three-Digit Numbers <b>Lesson 17:</b> Subtract Three-Digit Numbers <b>Lesson 18:</b> Use Addition and Subtraction Strategies with Three-Digit Numbers <b>Lesson 19:</b> Add Several Two-Digit Numbers  <u><b>Supporting Content:</b></u> 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 <b>Math in Action:</b> pp. 302–309, 492–499

Pennsylvania Core Standards in Mathematics Grade 2		i-Ready Classroom Mathematics Lessons Grade 2
<b>CC.2.2.2</b>	<b>Algebraic Concepts</b>	
CC.2.2.2.A	Operations and Algebraic Thinking	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.2.2.A.1	Represent and solve problems involving addition and subtraction within 100.	<p><b>Lesson 3:</b> Solve One-Step Word Problems  <b>Lesson 5:</b> Solve Two-Step Word Problems  <b>Lesson 9:</b> Solve Word Problems with Two-Digit Numbers  <b>Lesson 10:</b> Solve Word Problems Involving Money</p> <p><b>Supporting Content:</b>  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  <b>Math in Action:</b> pp. 124–131, 302–309, 492–499</p>
CC.2.2.2.A.2	Use mental strategies to add and subtract within 20.	<p><b>Lesson 1:</b> Mental Math Strategies for Addition  <b>Lesson 2:</b> Mental Math Strategies for Subtraction</p> <p><b>Supporting Content:</b>  Lesson 3: Solve One-Step Word Problems  <b>Math in Action:</b> pp. 124–131</p>
CC.2.2.2.A.3	Work with equal groups of objects to gain foundations for multiplication.	<p><b>Lesson 31:</b> Add Using Arrays  <b>Lesson 32:</b> Even and Odd Numbers</p> <p><b>Supporting Content:</b>  <b>Math in Action:</b> pp. 784–791</p>

Pennsylvania Core Standards in Mathematics Grade 2		i-Ready Classroom Mathematics Lessons Grade 2
<b>CC.2.3.2</b>	<b>Geometry</b>	
CC.2.3.2.A	Geometry	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.3.2.A.1	Analyze and draw two- and three-dimensional shapes having specified attributes.	<b>Lesson 28:</b> Recognize and Draw Shapes  <b>Supporting Content:</b> <b>Math in Action:</b> pp. 784–791
CC.2.3.2.A.2	Use the understanding of fractions to partition shapes into halves, quarters, and thirds.	<b>Lesson 29:</b> <i>Understand</i> Partitioning Shapes into Halves, Thirds, and Fourths <b>Lesson 30:</b> Partition Rectangles  <b>Supporting Content:</b> <b>Math in Action:</b> pp. 784–791
<b>CC.2.4.2</b>	<b>Measurement, Data, and Probability</b>	
CC.2.4.2.A	Measurement and Data	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.4.2.A.1	Measure and estimate lengths in standard units using appropriate tools.	<b>Lesson 20:</b> Measure in Inches and Centimeters <b>Lesson 21:</b> Measure in Feet and Meters <b>Lesson 22:</b> <i>Understand</i> Measurement with Different Units <b>Lesson 23:</b> Estimate and Measure Length <b>Lesson 24:</b> Compare Lengths  <b>Supporting Content:</b> <b>Math in Action:</b> pp. 676–683
CC.2.4.2.A.2	Tell and write time to the nearest five minutes using both analog and digital clocks.	<b>Lesson 11:</b> Tell and Write Time  <b>Supporting Content:</b> <b>Math in Action:</b> pp. 302–309

Pennsylvania Core Standards in Mathematics Grade 2		i-Ready Classroom Mathematics Lessons Grade 2
CC.2.4.2.A.3	Solve problems and make change using coins and paper currency with appropriate symbols.	<p><b>Lesson 10:</b> Solve Word Problems Involving Money</p> <p><b>Supporting Content:</b> Lesson 1: Mental Math Strategies for Addition; Lesson 2: Mental Math Strategies for Subtraction; Lesson 8: Use Addition and Subtraction Strategies with Two-Digit Numbers; Lesson 9: Solve Word Problems with Two-Digit Numbers; Lesson 19: Add Several Two-Digit Numbers</p> <p><b>Math in Action:</b> pp. 302–309</p>
CC.2.4.2.A.4	Represent and interpret data using line plots, picture graphs, and bar graphs.	<p><b>Lesson 4:</b> Draw and Use Bar Graphs and Picture Graphs</p> <p><b>Lesson 27:</b> Read and Make Line Plots</p> <p><b>Supporting Content:</b> <b>Math in Action:</b> pp. 124–131, 676–683</p>
CC.2.4.2.A.6	Extend the concepts of addition and subtraction to problems involving length.	<p><b>Lesson 25:</b> Add and Subtract Lengths</p> <p><b>Lesson 26:</b> Add and Subtract on the Number Line</p> <p><b>Supporting Content:</b> Lesson 27: Read and Make Line Plots</p> <p><b>Math in Action:</b> pp. 676–683</p>

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# **Pennsylvania Core Standards in Mathematics**

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Grade 3

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Pennsylvania Core Standards in Mathematics Grade 3		i-Ready Classroom Mathematics Lessons Grade 3
<b>Grade 3</b>		
<b>CC.2.1.3</b>	<b>Numbers and Operations</b>	
CC.2.1.3.B	Number & Operations in Base Ten	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.1.3.B.1	Apply place-value understanding and properties of operations to perform multi-digit arithmetic.	<b>Lesson 1:</b> Use Place Value to Round Numbers <b>Lesson 2:</b> Add Three-Digit Numbers <b>Lesson 3:</b> Subtract Three-Digit Numbers <b>Lesson 9:</b> Use Place Value to Multiply  <u><b>Supporting Content:</b></u> 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 <b>Math in Action:</b> pp. 76–83, 284–291, 442–449, 660–667, 754–761
CC.2.1.3.C	Number & Operations — Fractions	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.1.3.C.1	Explore and develop an understanding of fractions as numbers.	<b>Lesson 20:</b> <i>Understand</i> What a Fraction Is <b>Lesson 21:</b> <i>Understand</i> Fractions on a Number Line <b>Lesson 22:</b> <i>Understand</i> Equivalent Fractions <b>Lesson 23:</b> Find Equivalent Fractions <b>Lesson 24:</b> <i>Understand</i> Comparing Fractions <b>Lesson 25:</b> Use Symbols to Compare Fractions  <u><b>Supporting Content:</b></u> Lesson 26: Measure Length and Plot Data on Line Plots; Lesson 33: Partition Shapes into Parts with Equal Areas <b>Math in Action:</b> pp. 572–579, 754–761



Pennsylvania Core Standards in Mathematics Grade 3		i-Ready Classroom Mathematics Lessons Grade 3
<b>CC.2.2.3</b>	<b>Algebraic Concepts</b>	
CC.2.2.3.A	Operations and Algebraic Thinking	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.2.3.A.1	Represent and solve problems involving multiplication and division.	<p><b>Lesson 4:</b> <i>Understand</i> the Meaning of Multiplication</p> <p><b>Lesson 5:</b> Multiply with 0, 1, 2, 5, and 10</p> <p><b>Lesson 6:</b> Multiply with 3, 4, and 6</p> <p><b>Lesson 7:</b> Multiply with 7, 8, and 9</p> <p><b>Lesson 10:</b> <i>Understand</i> the Meaning of Division</p> <p><b>Lesson 12:</b> Multiplication and Division Facts</p> <p><b>Lesson 17:</b> Solve One-Step Word Problems Using Multiplication and Division</p> <p><b>Supporting Content:</b> Lesson 8: Use Order and Grouping to Multiply; Lesson 9: Use Place Value to Multiply; Lesson 11: Understand How Multiplication and Division Are Connected; 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 29: Mass; Lesson 32: Area and Perimeter of Shapes</p> <p><b>Math in Action:</b> pp. 284–291, 442–449</p>
CC.2.2.3.A.2	Understand properties of multiplication and the relationship between multiplication and division.	<p><b>Lesson 5:</b> Multiply with 0, 1, 2, 5, and 10</p> <p><b>Lesson 6:</b> Multiply with 3, 4, and 6</p> <p><b>Lesson 7:</b> Multiply with 7, 8, and 9</p> <p><b>Lesson 8:</b> Use Order and Grouping to Multiply</p> <p><b>Lesson 9:</b> Use Place Value to Multiply</p> <p><b>Lesson 11:</b> <i>Understand</i> How Multiplication and Division Are Connected</p> <p><b>Supporting Content:</b> Lesson 10: <i>Understand</i> the Meaning of Division; Lesson 12: Multiplication and Division Facts; Lesson 16: Add Areas; Lesson 17: Solve One-Step Word Problems Using Multiplication and Division</p> <p><b>Math in Action:</b> pp. 284–291</p>

Pennsylvania Core Standards in Mathematics Grade 3		i-Ready Classroom Mathematics Lessons Grade 3
CC.2.2.3.A.3	Demonstrate multiplication and division fluency.	<p><b>Lesson 5:</b> Multiply with 0, 1, 2, 5, and 10  <b>Lesson 6:</b> Multiply with 3, 4, and 6  <b>Lesson 7:</b> Multiply with 7, 8, and 9  <b>Lesson 12:</b> Multiplication and Division Facts</p> <p><b>Supporting Content:</b>  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  <b>Math in Action:</b> pp. 284–291</p>
CC.2.2.3.A.4	Solve problems involving the four operations, and identify and explain patterns in arithmetic.	<p><b>Lesson 13:</b> <i>Understand</i> Patterns  <b>Lesson 18:</b> Solve Two-Step Word Problems Using the Four Operations</p> <p><b>Supporting Content:</b>  <b>Math in Action:</b> pp. 442–449</p>
<b>CC.2.3.3</b>	<b>Geometry</b>	
CC.2.3.3.A	Geometry	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.3.3.A.1	Identify, compare, and classify shapes and their attributes.	<p><b>Lesson 30:</b> <i>Understand</i> Categories of Shapes  <b>Lesson 31:</b> Classify Quadrilaterals</p> <p><b>Supporting Content:</b>  Lesson 32: Area and Perimeter of Shapes  <b>Math in Action:</b> pp. 754–761</p>
CC.2.3.3.A.2	Use the understanding of fractions to partition shapes into parts with equal areas and express the area of each part as a unit fraction of the whole.	<p><b>Lesson 33:</b> Partition Shapes into Parts with Equal Areas</p> <p><b>Supporting Content:</b>  Lesson 20: <i>Understand</i> What a Fraction Is  <b>Math in Action:</b> pp. 754–761</p>

Pennsylvania Core Standards in Mathematics Grade 3		i-Ready Classroom Mathematics Lessons Grade 3
<b>CC.2.4.3</b>	<b>Measurement, Data, and Probability</b>	
CC.2.4.3.A	Measurement and Data	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.4.3.A.1	Solve problems involving measurement and estimation of temperature, liquid volume, mass or length.	<b>Lesson 28:</b> Liquid Volume <b>Lesson 29:</b> Mass  <b>Supporting Content:</b> <b>Math in Action:</b> pp. 660–667
CC.2.4.3.A.2	Tell and write time to the nearest minute and solve problems by calculating time intervals.	<b>Lesson 27:</b> Time  <b>Supporting Content:</b> <b>Math in Action:</b> pp. 660–667
CC.2.4.3.A.3	Solve problems and make change involving money using a combination of coins and bills.	<b>See Grade 4:</b> <b>Lesson 28:</b> Problems About Time and Money
CC.2.4.3.A.4	Represent and interpret data using tally charts, tables, pictographs, line plots, and bar graphs.	<b>Lesson 19:</b> Scaled Graphs <b>Lesson 26:</b> Measure Length and Plot Data on Line Plots  <i>Note: The lessons cited do not directly teach tally charts.</i>
CC.2.4.3.A.5	Determine the area of a rectangle and apply the concept to multiplication and to addition.	<b>Lesson 15:</b> Multiply to Find Area <b>Lesson 16:</b> Add Areas  <b>Supporting Content:</b> Lesson 17: Solve One-Step Word Problems Using Multiplication and Division; Lesson 32: Area and Perimeter of Shapes <b>Math in Action:</b> pp. 754–761
CC.2.4.3.A.6	Solve problems involving perimeters of polygons and distinguish between linear and area measures.	<b>Lesson 14:</b> <i>Understand Area</i> <b>Lesson 32:</b> Area and Perimeter of Shapes  <b>Supporting Content:</b> Lesson 15: Multiply to Find Area; Lesson 16: Add Areas <b>Math in Action:</b> pp. 754–761

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# **Pennsylvania Core Standards in Mathematics**

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Grade 4

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Pennsylvania Core Standards in Mathematics Grade 4		i-Ready Classroom Mathematics Lessons Grade 4
<b>Grade 4</b>		
<b>CC.2.1.4</b>	<b>Numbers and Operations</b>	
CC.2.1.4.B	Number & Operations in Base Ten	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.1.4.B.1	Apply place-value concepts to show an understanding of multi-digit whole numbers.	<b>Lesson 1:</b> <i>Understand</i> Place Value <b>Lesson 2:</b> Compare Whole Numbers <b>Lesson 3:</b> Round Whole Numbers  <u><b>Supporting Content:</b></u> Lesson 4: Add Whole Numbers; Lesson 5: Subtract Whole Numbers; Lesson 11: Multiply by One-Digit Numbers <b>Math in Action:</b> pp. 92–99
CC.2.1.4.B.2	Use place-value understanding and properties of operations to perform multi-digit arithmetic.	<b>Lesson 4:</b> Add Whole Numbers <b>Lesson 5:</b> Subtract Whole Numbers <b>Lesson 11:</b> Multiply by One-Digit Numbers <b>Lesson 12:</b> Multiply by Two-Digit Numbers <b>Lesson 14:</b> Divide Three-Digit Numbers <b>Lesson 15:</b> Divide Four-Digit Numbers  <u><b>Supporting Content:</b></u> Lesson 10: Model and Solve Multi-Step Problems; Lesson 13: Use Multiplication to Convert Measurements; Lesson 16: Find Perimeter and Area; Lesson 28: Problems About Time and Money; Lesson 29: Problems About Length, Liquid Volume, Mass, and Weight <b>Math in Action:</b> pp. 92–99, 214–221, 350–357
CC.2.1.4.C	Number & Operations — Fractions	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.1.4.C.1	Extend the understanding of fractions to show equivalence and ordering.	<b>Lesson 17:</b> <i>Understand</i> Equivalent Fractions <b>Lesson 18:</b> Compare Fractions  <u><b>Supporting Content:</b></u> Lesson 25: Fractions as Tenths and Hundredths <b>Math in Action:</b> pp. 628–635

Pennsylvania Core Standards in Mathematics Grade 4		i-Ready Classroom Mathematics Lessons Grade 4
CC.2.1.4.C.2	Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	<p><b>Lesson 19:</b> <i>Understand</i> Fraction Addition and Subtraction</p> <p><b>Lesson 20:</b> Add and Subtract Fractions</p> <p><b>Lesson 21:</b> Add and Subtract Mixed Numbers</p> <p><b>Lesson 23:</b> Understand Fraction Multiplication</p> <p><b>Lesson 24:</b> Multiply Fractions by Whole Numbers</p> <p><b>Supporting Content:</b> Lesson 22: Add and Subtract Fractions in Line Plots; Lesson 29: Problems About Length, Liquid Volume, Mass, and Weight</p> <p><b>Math in Action:</b> pp. 628–635</p>
CC.2.1.4.C.3	Connect decimal notation to fractions, and compare decimal fractions (base 10 denominator, e.g., 19/100).	<p><b>Lesson 25:</b> Fractions as Tenths and Hundreths</p> <p><b>Lesson 26:</b> Relate Decimals and Fractions</p> <p><b>Lesson 27:</b> Compare Decimals</p> <p><b>Supporting Content:</b> <b>Math in Action:</b> pp. 628–635</p>
<b>CC.2.2.4</b>	<b>Algebraic Concepts</b>	
CC.2.2.4.A	Operations and Algebraic Thinking	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.2.4.A.1	Represent and solve problems involving the four operations.	<p><b>Lesson 6:</b> <i>Understand</i> Multiplication as a Comparison</p> <p><b>Lesson 7:</b> Multiplication and Division in Word Problems</p> <p><b>Lesson 10:</b> Model and Solve Multi-Step Problems</p> <p><b>Supporting Content:</b> Lesson 28: Problems About Time and Money; Lesson 29: Problems About Length, Liquid Volume, Mass, and Weight</p> <p><b>Math in Action:</b> pp. 214–221</p>

Pennsylvania Core Standards in Mathematics Grade 4		i-Ready Classroom Mathematics Lessons Grade 4
CC.2.2.4.A.2	Develop and/or apply number theory concepts to find factors and multiples.	<b>Lesson 8:</b> Multiples and Factors  <b>Supporting Content:</b> Lesson 9: Number and Shape Patterns <b>Math in Action:</b> pp. 214–221, 350–357
CC.2.2.4.A.4	Generate and analyze patterns using one rule.	<b>Lesson 9:</b> Number and Shape Patterns
<b>CC.2.3.4</b>	<b>Geometry</b>	
CC.2.3.4.A	Geometry	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.3.4.A.1	Draw lines and angles and identify these in two-dimensional figures.	<b>Lesson 30:</b> Points, Lines, Rays, and Angles  <b>Supporting Content:</b> Lesson 33: Classify Two-Dimensional Figures <b>Math in Action:</b> pp. 760–767
CC.2.3.4.A.2	Classify two-dimensional figures by properties of their lines and angles.	<b>Lesson 33:</b> Classify Two-Dimensional Figures  <b>Supporting Content:</b> <b>Math in Action:</b> pp. 760–767
CC.2.3.4.A.3	Recognize symmetric shapes and draw lines of symmetry.	<b>Lesson 34:</b> Symmetry  <b>Supporting Content:</b> <b>Math in Action:</b> pp. 760–767

Pennsylvania Core Standards in Mathematics Grade 4		i-Ready Classroom Mathematics Lessons Grade 4
<b>CC.2.4.4</b>	<b>Measurement, Data, and Probability</b>	
CC.2.4.4.A	Measurement and Data	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.4.4.A.1	Solve problems involving measurement and conversions from a larger unit to a smaller unit.	<b>Lesson 13:</b> Use Multiplication to Convert Measurements <b>Lesson 16:</b> Find Perimeter and Area <b>Lesson 28:</b> Problems About Time and Money <b>Lesson 29:</b> Problems About Length, Liquid Volume, Mass, and Weight  <u><b>Supporting Content:</b></u> <b>Math in Action:</b> pp. 350–357
CC.2.4.4.A.2	Translate information from one type of data display to another.	<b>Lesson 22:</b> Add and Subtract Fractions in Line Plots  <u><b>Supporting Content:</b></u> <b>Math in Action:</b> pp. 628–635
CC.2.4.4.A.4	Represent and interpret data involving fractions using information provided in a line plot.	<b>Lesson 22:</b> Add and Subtract Fractions in Line Plots <b>Lesson 29:</b> Problems About Length, Liquid Volume, Mass, and Weight
CC.2.4.4.A.6	Measure angles and use properties of adjacent angles to solve problems.	<b>Lesson 30:</b> Points, Lines, Rays, and Angles <b>Lesson 31:</b> Angles <b>Lesson 32:</b> Add and Subtract with Angles  <u><b>Supporting Content:</b></u> Lesson 33: Classify Two-Dimensional Figures <b>Math in Action:</b> pp. 760–767





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Grade 5

Pennsylvania Core Standards in Mathematics Grade 5		i-Ready Classroom Mathematics Lessons Grade 5
<b>Grade 5</b>		
<b>CC.2.1.5</b>	<b>Numbers and Operations</b>	
CC.2.1.5.B	Number & Operations in Base Ten	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.1.5.B.1	Apply place-value concepts to show an understanding of operations and rounding as they pertain to whole numbers and decimals.	<b>Lesson 6:</b> <i>Understand</i> Decimal Place Value <b>Lesson 7:</b> <i>Understand</i> Powers of 10 <b>Lesson 8:</b> Read and Write Decimals <b>Lesson 9:</b> Compare and Round Decimals  <u><b>Supporting Content:</b></u> 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; Lesson 25: Convert Measurement Units; Lesson 26: Solve Word Problems Involving Conversions <b>Math in Action:</b> pp. 292–299
CC.2.1.5.B.2	Extend an understanding of operations with whole numbers to perform operations including decimals.	<b>Lesson 4:</b> Multiply Multi-Digit Numbers <b>Lesson 5:</b> Divide Multi-Digit Numbers <b>Lesson 10:</b> Add Decimals <b>Lesson 11:</b> Subtract Decimals <b>Lesson 14:</b> Add and Subtract in Word Problems <b>Lesson 15:</b> Multiply a Decimal by a Whole Number <b>Lesson 16:</b> Multiply Decimals <b>Lesson 17:</b> Divide Decimals  <u><b>Supporting Content:</b></u> Lesson 3: Find Volume Using Formulas; Lesson 26: Solve Word Problems Involving Conversions <b>Math in Action:</b> pp. 104–111, 292–299, 492–499
CC.2.1.5.C	Number & Operations — Fractions	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.1.5.C.1	Use the understanding of equivalency to add and subtract fractions.	<b>Lesson 12:</b> Add Fractions <b>Lesson 13:</b> Subtract Fractions <b>Lesson 14:</b> Add and Subtract in Word Problems  <u><b>Supporting Content:</b></u> Lesson 27: Make Line Plots and Interpret Data <b>Math in Action:</b> pp. 292–299

Pennsylvania Core Standards in Mathematics Grade 5		i-Ready Classroom Mathematics Lessons Grade 5
CC.2.1.5.C.2	Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	<p><b>Lesson 18:</b> Fractions as Division  <b>Lesson 19:</b> <i>Understand</i> Multiplication by a Fraction  <b>Lesson 20:</b> Multiply Fractions to Find Area  <b>Lesson 21:</b> <i>Understand</i> Multiplication as Scaling  <b>Lesson 22:</b> Multiply Fractions in Word Problems  <b>Lesson 23:</b> <i>Understand</i> Division with Unit Fractions  <b>Lesson 24:</b> Divide Unit Fractions in Word Problems</p> <p><b>Supporting Content:</b>  Lesson 25: Convert Measurement Units; Lesson 26: Solve Word Problems Involving Conversions; Lesson 27: Make Line Plots and Interpret Data  <b>Math in Action:</b> pp. 492–499</p>
<b>CC.2.2.5</b>	<b>Algebraic Concepts</b>	
CC.2.2.5.A	Operations and Algebraic Thinking	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.2.5.A.1	Interpret and evaluate numerical expressions using order of operations.	<p><b>Lesson 30:</b> Evaluate, Write, and Interpret Expressions</p> <p><b>Supporting Content:</b>  Lesson 3: Find Volume Using Formulas; Lesson 8: Read and Write Decimals  <b>Math in Action:</b> pp. 702–709</p>
CC.2.2.5.A.4	Analyze patterns and relationships using two rules.	<b>Lesson 33:</b> Analyze Patterns and Relationships
<b>CC.2.3.5</b>	<b>Geometry</b>	
CC.2.3.5.A	Geometry	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.3.5.A.1	Graph points in the first quadrant on the coordinate plane and interpret these points when solving real world and mathematical problems.	<p><b>Lesson 31:</b> <i>Understand</i> the Coordinate Plane  <b>Lesson 32:</b> Represent Problems in the Coordinate Plane</p> <p><b>Supporting Content:</b>  Lesson 33: Analyze Patterns and Relationships  <b>Math in Action:</b> pp. 702–709</p>

Pennsylvania Core Standards in Mathematics Grade 5		i-Ready Classroom Mathematics Lessons Grade 5
CC.2.3.5.A.2	Classify two-dimensional figures into categories based on an understanding of their properties.	<b>Lesson 28:</b> <i>Understand</i> Categories of Two-Dimensional Figures <b>Lesson 29:</b> Classify Two-Dimensional Figures  <b>Supporting Content:</b> <b>Math in Action:</b> pp. 608–615
<b>CC.2.4.5</b>	<b>Measurement, Data, and Probability</b>	
CC.2.4.5.A	Measurement and Data	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.4.5.A.1	Solve problems using conversions within a given measurement system.	<b>Lesson 25:</b> Convert Measurement Units <b>Lesson 26:</b> Solve Word Problems Involving Conversions  <b>Supporting Content:</b> <b>Math in Action:</b> pp. 608–615
CC.2.4.5.A.2	Represent and interpret data using appropriate scale.	<b>Lesson 27:</b> Make Line Plots and Interpret Data  <b>Supporting Content:</b> <b>Math in Action:</b> pp. 608–615
CC.2.4.5.A.4	Solve problems involving computation of fractions using information provided in a line plot.	<b>Lesson 27:</b> Make Line Plots and Interpret Data  <b>Supporting Content:</b> <b>Math in Action:</b> pp. 608–615
CC.2.4.5.A.6	Apply concepts of volume to solve problems and relate volume to multiplication and to addition.	<b>Lesson 1:</b> <i>Understand</i> Volume <b>Lesson 2:</b> Find Volume Using Unit Cubes <b>Lesson 3:</b> Find Volume Using Formulas  <b>Supporting Content:</b> Lesson 4: Multiply Multi-Digit Numbers; Lesson 5: Divide Multi-Digit Numbers <b>Math in Action:</b> pp. 104–111

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# Pennsylvania Core Standards in Mathematics

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Grade 6

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Pennsylvania Core Standards in Mathematics Grade 6		i-Ready Classroom Mathematics Lessons Grade 6
<b>Grade 6</b>		
<b>CC.2.1.6</b>	<b>Numbers and Operations</b>	
CC.2.1.6.D	Ratios & Proportional Relationships	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.1.6.D.1	Understand ratio concepts and use ratio reasoning to solve problems.	<b>Lesson 12:</b> Understand Ratio Concepts <b>Lesson 13:</b> Find Equivalent Ratios <b>Lesson 14:</b> Use Part-to-Part and Part-to-Whole Ratios <b>Lesson 15:</b> Understand Rate Concepts <b>Lesson 16:</b> Use Unit Rates to Solve Problems <b>Lesson 17:</b> Understand Percents <b>Lesson 18:</b> Use Percents to Solve Problems  <u><b>Supporting Content:</b></u> Lesson 21: Write and Solve One-Variable Equations; Lesson 22: Analyze Two-Variable Relationships <b>Math in Action:</b> pp. 329–337, 419–427
CC.2.1.6.E	The Number System	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.1.6.E.1	Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	<b>Lesson 9:</b> Understand Division with Fractions <b>Lesson 10:</b> Divide Fractions  <u><b>Supporting Content:</b></u> Lesson 11: Solve Volume Problems with Fractions; Lesson 21: Write and Solve One-Variable Equations <b>Math in Action:</b> pp. 251–259

Pennsylvania Core Standards in Mathematics Grade 6		i-Ready Classroom Mathematics Lessons Grade 6
CC.2.1.6.E.2	Identify and choose appropriate processes to compute fluently with multi-digit numbers.	<p><b>Lesson 7:</b> Add, Subtract, and Multiply Multi-Digit Decimals</p> <p><b>Lesson 8:</b> Divide Whole Numbers and Multi-Digit Decimals</p> <p><b>Supporting Content:</b> Lesson 1: Find the Area of a Parallelogram; Lesson 2: Find the Area of Triangles and Other Polygons; Lesson 3: Use Nets to Find Surface Area; Lesson 16: Use Unit Rates to Solve Problems; Lesson 18: Use Percents to Solve Problems; Lesson 21: Write and Solve One-Variable Equations; Lesson 31: Interpret Median and Interquartile Range in Box Plots; Lesson 32: Interpret Mean and Mean Absolute Deviation; Lesson 33: Use Measures of Center and Variability to Summarize Data</p> <p><b>Math in Action:</b> 251–259</p>
CC.2.1.6.E.3	Develop and/or apply number theory concepts to find common factors and multiples.	<p><b>Lesson 6:</b> Find Greatest Common Factor and Least Common Multiple</p> <p><b>Lesson 19:</b> Write and Identify Equivalent Expressions</p> <p><b>Supporting Content:</b> <b>Math in Action:</b> pp. 129–137; 525–533</p>
CC.2.1.6.E.4	Apply and extend previous understandings of numbers to the system of rational numbers.	<p><b>Lesson 23:</b> Understand Positive and Negative Numbers</p> <p><b>Lesson 24:</b> Order Positive and Negative Numbers</p> <p><b>Lesson 25:</b> Understand Absolute Value</p> <p><b>Lesson 27:</b> Understand the Four-Quadrant Coordinate Plane</p> <p><b>Supporting Content:</b> Lesson 26: Write and Graph One-Variable Inequalities; Lesson 28: Solve Problems in the Coordinate Plane</p> <p><b>Math in Action:</b> pp. 643–651</p>

Pennsylvania Core Standards in Mathematics Grade 6		i-Ready Classroom Mathematics Lessons Grade 6
<b>CC.2.2.6</b>	<b>Algebraic Concepts</b>	
CC.2.2.6.B	Expressions and Equations	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.2.6.B.1	Apply and extend previous understandings of arithmetic to algebraic expressions.	<p><b>Lesson 4:</b> Work with Algebraic Expressions  <b>Lesson 5:</b> Write and Evaluate Expressions with Exponents  <b>Lesson 19:</b> Write and Identify Equivalent Expressions</p> <p><b>Supporting Content:</b>  Lesson 1: Find the Area of a Parallelogram;  Lesson 2: Find the Area of Triangles and Other Polygons;  Lesson 3: Use Nets to Find Surface Area;  Lesson 6: Find Greatest Common Factor and Least Common Multiple;  Lesson 7: Add, Subtract, and Multiply Multi-Digit Decimals;  Lesson 21: Write and Solve One-Variable Equations</p> <p><b>Math in Action:</b> pp. 129–137</p>
CC.2.2.6.B.2	Understand the process of solving a one-variable equation or inequality and apply to real-world and mathematical problems.	<p><b>Lesson 20:</b> Understand Solutions of Equations  <b>Lesson 21:</b> Write and Solve One-Variable Equations  <b>Lesson 26:</b> Write and Graph One-Variable Inequalities</p> <p><b>Supporting Content:</b>  Lesson 1: Find the Area of a Parallelogram;  Lesson 2: Find the Area of Triangles and Other Polygons;  Lesson 4: Work with Algebraic Expressions;  Lesson 19: Write and Identify Equivalent Expressions;  Lesson 22: Analyze Two-Variable Relationships</p> <p><b>Math in Action:</b> pp. 643–651</p>
CC.2.2.6.B.3	Represent and analyze quantitative relationships between dependent and independent variables.	<p><b>Lesson 22:</b> Analyze Two-Variable Relationships</p> <p><b>Supporting Content:</b>  <b>Math in Action:</b> pp. 525–533</p>



Pennsylvania Core Standards in Mathematics Grade 6		i-Ready Classroom Mathematics Lessons Grade 6
<b>CC.2.3.6</b>	<b>Geometry</b>	
CC.2.3.6.A	Geometry	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.3.6.A.1	Apply appropriate tools to solve real-world and mathematical problems involving area, surface area, and volume.	<p><b>Lesson 1:</b> Find the Area of a Parallelogram  <b>Lesson 2:</b> Find the Area of Triangles and Other Polygons  <b>Lesson 3:</b> Use Nets to Find Surface Area  <b>Lesson 11:</b> Solve Volume Problems with Fractions  <b>Lesson 28:</b> Solve Problems in the Coordinate Plane</p> <p><b>Supporting Content:</b>  Lesson 5: Write and Evaluate Expressions with Exponents; Lesson 7: Add, Subtract, and Multiply Multi-Digit Decimals; Lesson 8: Divide Whole Numbers and Multi-Digit Decimals; Lesson 10: Divide Fractions; Lesson 21: Write and Solve One-Variable Equations; Lesson 27: Understand the Four-Quadrant Coordinate Plane  <b>Math in Action:</b> pp. 129–137, 251–259, 643–651</p>
<b>CC.2.4.6</b>	<b>Measurement, Data, and Probability</b>	
CC.2.4.6.B	Statistics and Probability	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.4.6.B.1	Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions.	<p><b>Lesson 29:</b> Understand Statistical Questions and Data Distributions  <b>Lesson 30:</b> Use Dot Plots and Histograms to Describe Data Distributions  <b>Lesson 31:</b> Interpret Median and Interquartile Range in Box Plots  <b>Lesson 32:</b> Interpret Mean and Mean Absolute Deviation  <b>Lesson 33:</b> Use Measures of Center and Variability to Summarize Data</p> <p><b>Supporting Content:</b>  <b>Math in Action:</b> pp. 753–761</p>

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# Pennsylvania Core Standards in Mathematics

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Grade 7

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Pennsylvania Core Standards in Mathematics Grade 7		i-Ready Classroom Mathematics Lessons Grade 7
<b>Grade 7</b>		
<b>CC.2.1.7</b>	<b>Numbers and Operations</b>	
CC.2.1.7.D	Ratios & Proportional Relationships	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.1.7.D.1	Analyze proportional relationships and use them to model and solve real-world and mathematical problems.	<p><b>Lesson 2:</b> Find Unit Rates Involving Ratios of Fractions</p> <p><b>Lesson 3:</b> Understand Proportional Relationships</p> <p><b>Lesson 4:</b> Represent Proportional Relationships</p> <p><b>Lesson 5:</b> Solve Proportional Relationship Problems</p> <p><b>Lesson 20:</b> Solve Problems Involving Percents</p> <p><b>Lesson 21:</b> Solve Problems Involving Percent Change and Percent Error</p> <p><b>Supporting Content:</b> Lesson 1: Solve Problems Involving Scale; Lesson 6: Solve Area and Circumference Problems Involving Circles; Lesson 23: Reason About Random Samples; Lesson 24: Compare Populations; Lesson 31: Solve Problems Involving Experimental Probability</p> <p><b>Math in Action:</b> pp. 119–127, 525–533</p>

Pennsylvania Core Standards in Mathematics Grade 7		i-Ready Classroom Mathematics Lessons Grade 7
CC.2.1.7.E	The Number System	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.1.7.E.1	Apply and extend previous understandings of operations with fractions to operations with rational numbers.	<p><b>Lesson 7:</b> Understand Addition with Negative Integers</p> <p><b>Lesson 8:</b> Add with Negative Numbers</p> <p><b>Lesson 9:</b> Understand Subtraction with Negative Integers</p> <p><b>Lesson 10:</b> Add and Subtract Positive and Negative Numbers</p> <p><b>Lesson 11:</b> Understand Multiplication with Negative Integers</p> <p><b>Lesson 12:</b> Multiply and Divide with Negative Numbers</p> <p><b>Lesson 13:</b> Express Rational Numbers as Terminating or Repeating Decimals</p> <p><b>Lesson 14:</b> Use the Four Operations with Negative Numbers</p> <p><b>Supporting Content:</b>  Lesson 15: Write Equivalent Expressions Involving Rational Numbers; Lesson 17: Understand Multi-Step Equations; Lesson 20: Solve Problems Involving Percents; Lesson 21: Solve Problems Involving Percent Change and Percent Error; Lesson 24: Compare Populations; Lesson 25: Solve Problems Involving Area and Surface Area; Lesson 26: Solve Problems Involving Volume; Lesson 30: Understand Probability</p> <p><b>Math in Action:</b> pp. 203–211, 291–299</p>

Pennsylvania Core Standards in Mathematics Grade 7		i-Ready Classroom Mathematics Lessons Grade 7
<b>CC.2.2.7</b>	<b>Algebraic Concepts</b>	
CC.2.2.7.B	Expressions and Equations	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.2.7.B.1	Apply properties of operations to generate equivalent expressions.	<p><b>Lesson 15:</b> Write Equivalent Expressions Involving Rational Numbers</p> <p><b>Supporting Content:</b> Lesson 16: Understand Reasons for Rewriting Expressions; Lesson 17: Understand Multi-Step Equations; Lesson 18: Write and Solve Multi-Step Equations; Lesson 19: Write and Solve Inequalities</p> <p><b>Math in Action:</b> pp. 403–411</p>
CC.2.2.7.B.3	Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.	<p><b>Lesson 13:</b> Express Rational Numbers as Terminating or Repeating Decimals</p> <p><b>Lesson 14:</b> Use the Four Operations with Negative Numbers</p> <p><b>Lesson 17:</b> Understand Multi-Step Equations</p> <p><b>Lesson 18:</b> Write and Solve Multi-Step Equations</p> <p><b>Lesson 19:</b> Write and Solve Inequalities</p> <p><b>Supporting Content:</b> Lesson 1: Solve Problems Involving Scale; Lesson 5: Solve Proportional Relationship Problems; Lesson 7: Understand Addition with Negative Integers; Lesson 8: Add with Negative Numbers; Lesson 9: Understand Subtraction with Negative Integers; Lesson 10: Add and Subtract Positive and Negative Numbers; Lesson 11: Understand Multiplication with Negative Integers; Lesson 12: Multiply and Divide with Negative Numbers; Lesson 20: Solve Problems Involving Percents; Lesson 21: Solve Problems Involving Percent Change and Percent Error; Lesson 24: Compare Populations; Lesson 25: Solve Problems Involving Area and Surface Area; Lesson 26: Solve Problems Involving Volume; Lesson 28: Find Unknown Angle Measures</p> <p><b>Math in Action:</b> pp. 291–299, 403–411</p>

Pennsylvania Core Standards in Mathematics Grade 7		i-Ready Classroom Mathematics Lessons Grade 7
<b>CC.2.3.7</b>	<b>Geometry</b>	
CC.2.3.7.A	Geometry	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.3.7.A.1	Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume.	<b>Lesson 6:</b> Solve Area and Circumference Problems Involving Circles <b>Lesson 25:</b> Solve Problems Involving Area and Surface Area <b>Lesson 26:</b> Solve Problems Involving Volume <b>Lesson 28:</b> Find Unknown Angle Measures  <u><b>Supporting Content:</b></u> Lesson 15: Write Equivalent Expressions Involving Rational Numbers; Lesson 16: Understand Reasons for Rewriting Expressions <b>Math in Action:</b> pp. 119–127, 657–665
CC.2.3.7.A.2	Visualize and represent geometric figures and describe the relationships between them.	<b>Lesson 1:</b> Solve Problems Involving Scale <b>Lesson 27:</b> Describe Plane Sections of Three-Dimensional Figures <b>Lesson 29:</b> Draw Plane Figures with Given Conditions  <u><b>Supporting Content:</b></u> Lesson 2: Find Unit Rates Involving Ratios of Fractions <b>Math in Action:</b> pp. 119–127, 657–665
<b>CC.2.4.7</b>	<b>Measurement, Data, and Probability</b>	
CC.2.4.7.B	Statistics and Probability	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.4.7.B.1	Draw inferences about populations based on random sampling concepts.	<b>Lesson 22:</b> Understand Random Sampling <b>Lesson 23:</b> Reason About Random Samples  <u><b>Supporting Content:</b></u> Lesson 24: Compare Populations <b>Math in Action:</b> pp. 525–533
CC.2.4.7.B.2	Draw informal comparative inferences about two populations.	<b>Lesson 24:</b> Compare Populations  <u><b>Supporting Content:</b></u> <b>Math in Action:</b> pp. 525–533

Pennsylvania Core Standards in Mathematics Grade 7		i-Ready Classroom Mathematics Lessons Grade 7
CC.2.4.7.B.3	Investigate chance processes and develop, use, and evaluate probability models.	<p><b>Lesson 30:</b> Understand Probability</p> <p><b>Lesson 31:</b> Solve Problems Involving Experimental Probability</p> <p><b>Lesson 32:</b> Solve Problems Involving Probability Models</p> <p><b>Lesson 33:</b> Solve Problems Involving Compound Events</p> <p><b><u>Supporting Content:</u></b>  <b>Math in Action:</b> pp. 757–765</p>



 **i-Ready® Classroom**  
**Mathematics**

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to the

**Pennsylvania Core Standards  
in Mathematics**



Grade 8



Pennsylvania Core Standards in Mathematics Grade 8		i-Ready Classroom Mathematics Lessons Grade 8
<b>Grade 8</b>		
<b>CC.2.1.8</b>	<b>Numbers and Operations</b>	
CC.2.1.8.E	The Number System	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.1.8.E.1	Distinguish between rational and irrational numbers using their properties.	<b>Lesson 24:</b> Express Rational Numbers as Fractions and Decimals <b>Lesson 25:</b> Find Rational Approximations of Irrational Numbers
CC.2.1.8.E.4	Estimate irrational numbers by comparing them to rational numbers.	<b>Lesson 25:</b> Find Rational Approximations of Irrational Numbers  <u><b>Supporting Content:</b></u> Lesson 27: Apply the Pythagorean Theorem; Lesson 28: Solve Problems with Volumes of Cylinders, Cones, and Spheres <b>Math in Action:</b> pp. 679–687
<b>CC.2.2.8</b>	<b>Algebraic Concepts</b>	
CC.2.2.8.B	Expressions and Equations	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.2.8.B.1	Apply concepts of radicals and integer exponents to generate equivalent expressions.	<b>Lesson 19:</b> Apply Exponent Properties for Positive Integer Exponents <b>Lesson 20:</b> Apply Exponent Properties for All Integer Exponents <b>Lesson 21:</b> Express Numbers Using Integer Powers of 10 <b>Lesson 22:</b> Work with Scientific Notation <b>Lesson 23:</b> Find Square Roots and Cube Roots to Solve Problems <b>Lesson 25:</b> Find Rational Approximations of Irrational Numbers  <u><b>Supporting Content:</b></u> Lesson 26: Understand the Pythagorean Theorem and Its Converse; Lesson 27: Apply the Pythagorean Theorem <b>Math in Action:</b> pp. 541–549, 679–687

Pennsylvania Core Standards in Mathematics Grade 8		i-Ready Classroom Mathematics Lessons Grade 8
CC.2.2.8.B.2	Understand the connections between proportional relationships, lines, and linear equations.	<p><b>Lesson 8:</b> Graph Proportional Relationships and Define Slope</p> <p><b>Lesson 9:</b> Derive and Graph Linear Equations of the Form <math>y = mx + b</math></p> <p><b>Lesson 17:</b> Compare Different Representations of Functions</p> <p><b>Supporting Content:</b> Lesson 15: Understand Functions; Lesson 16: Use Functions to Model Linear Relationships <b>Math in Action:</b> pp. 331–339; 431–439</p>
CC.2.2.8.B.3	Analyze and solve linear equations and pairs of simultaneous linear equations.	<p><b>Lesson 10:</b> Solve Linear Equations in One Variable</p> <p><b>Lesson 11:</b> Determine the Number of Solutions to One-Variable Equations</p> <p><b>Lesson 12:</b> Understand Systems of Linear Equations in Two Variables</p> <p><b>Lesson 13:</b> Solve Systems of Linear Equations Algebraically</p> <p><b>Lesson 14:</b> Represent and Solve Problems with Systems of Linear Equations</p> <p><b>Supporting Content:</b> Lesson 9: Derive and Graph Linear Equations of the Form <math>y = mx + b</math> <b>Math in Action:</b> pp. 331–339</p>
CC.2.2.8.C	Functions	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.2.8.C.1	Define, evaluate, and compare functions.	<p><b>Lesson 15:</b> Understand Functions</p> <p><b>Lesson 17:</b> Compare Different Representations of Functions</p> <p><b>Supporting Content:</b> Lesson 9: Derive and Graph Linear Equations of the Form <math>y = mx + b</math>; Lesson 16: Use Functions to Model Linear Relationships; Lesson 30: Write and Analyze an Equation for Fitting a Linear Model to Data <b>Math in Action:</b> pp. 431–439</p>

Pennsylvania Core Standards in Mathematics Grade 8		i-Ready Classroom Mathematics Lessons Grade 8
CC.2.2.8.C.2	Use concepts of functions to model relationships between quantities.	<p><b>Lesson 16:</b> Use Functions to Model Linear Relationships</p> <p><b>Lesson 18:</b> Analyze Functional Relationships Qualitatively</p> <p><b>Supporting Content:</b> Lesson 12: Understand Systems of Linear Equations in Two Variables; Lesson 13: Solve Systems of Linear Equations Algebraically; Lesson 14: Represent and Solve Problems with Systems of Linear Equations; Lesson 17: Compare Different Representations of Functions; Lesson 29: Analyze Scatter Plots and Fit a Linear Model to Data; Lesson 30: Write and Analyze an Equation for Fitting a Linear Model to Data</p> <p><b>Math in Action:</b> pp. 431–439</p>
<b>CC.2.3.8</b>	<b>Geometry</b>	
CC.2.3.8.A	Geometry	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.3.8.A.1	Apply the concepts of volume of cylinders, cones, and spheres to solve real-world and mathematical problems.	<p><b>Lesson 28:</b> Solve Problems with Volumes of Cylinders, Cones, and Spheres</p> <p><b>Supporting Content:</b> <b>Math in Action:</b> pp. 679–687</p>

Pennsylvania Core Standards in Mathematics Grade 8		i-Ready Classroom Mathematics Lessons Grade 8
CC.2.3.8.A.2	Understand and apply congruence, similarity, and geometric transformations using various tools.	<p><b>Lesson 1:</b> Understand Rigid Transformations and Their Properties</p> <p><b>Lesson 2:</b> Work with Single Rigid Transformations in the Coordinate Plane</p> <p><b>Lesson 3:</b> Work with Sequences of Transformations and Congruence</p> <p><b>Lesson 4:</b> Understand Dilations and Similarity</p> <p><b>Lesson 5:</b> Perform and Describe Transformations Involving Dilations</p> <p><b>Lesson 6:</b> Describe Angle Relationships</p> <p><b>Lesson 7:</b> Describe Angle Relationships in Triangles</p> <p><b>Supporting Content:</b> Lesson 8: Graph Proportional Relationships and Define Slope <b>Math in Action:</b> pp. 65–73, 159–167</p>
CC.2.3.8.A.3	Understand and apply the Pythagorean Theorem to solve problems.	<p><b>Lesson 26:</b> Understand the Pythagorean Theorem and Its Converse</p> <p><b>Lesson 27:</b> Apply the Pythagorean Theorem</p> <p><b>Supporting Content:</b> Lesson 28: Solve Problems with Volumes of Cylinders, Cones, and Spheres <b>Math in Action:</b> pp. 679–687</p>
<b>CC.2.4.8</b>	<b>Measurement, Data, and Probability</b>	
CC.2.4.8.B	Statistics and Probability	
	<i>Students acquire the knowledge and skills needed to:</i>	
CC.2.4.8.B.1	Analyze and/or interpret bivariate data displayed in multiple representations.	<p><b>Lesson 29:</b> Analyze Scatter Plots and Fit a Linear Model to Data</p> <p><b>Lesson 30:</b> Write and Analyze an Equation for Fitting a Linear Model to Data</p> <p><b>Supporting Content:</b> Lesson 16: Use Functions to Model Linear Relationships <b>Math in Action:</b> pp. 779–787</p>

Pennsylvania Core Standards in Mathematics Grade 8		i-Ready Classroom Mathematics Lessons Grade 8
CC.2.4.8.B.2	Understand that patterns of association can be seen in bivariate data utilizing frequencies.	<p><b>Lesson 31:</b> Understand Two-Way Tables</p> <p><b>Lesson 32:</b> Construct and Interpret Two-Way Tables</p> <p><b>Supporting Content:</b></p> <p><b>Math in Action:</b> pp. 779–787</p>