Istation

Istation Math Curriculum Correlated to the Ohio Learning Standards for Mathematics

Grade 3 – Grade 5

Contents

K–12 Standards for Mathematical Practices (MP)

As stated in the Ohio Learning Standards for Mathematics, “The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.” Each applicable Mathematical Practice standard is listed below the correlation with the corresponding code, MP1–8.

Mathematical Practice 1: Make sense of problems and persevere in solving them.

Mathematical Practice 2: Reason abstractly and quantitatively.

Mathematical Practice 3: Construct viable arguments and critique the reasoning of others.

Mathematical Practice 4: Model with mathematics.

Mathematical Practice 5: Use appropriate tools strategically.

Mathematical Practice 6: Attend to precision.

Mathematical Practice 7: Look for and make use of structure.

Mathematical Practice 8: Look for and express regularity in repeated reasoning.

The following legend outlines the *Codes* found next to each *Digital Student Experience* and related *Teacher Resources*.

Code Legend	
U	Unit
ISIP	Istation’s Indicators of Progress
EM	Early Math
FP	Fact Practice
PFL	Personal Financial Literacy

Grade 3

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.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U35	Computation and Algebraic Thinking – Arithmetic Patterns in Multiplication	U35	Arithmetic Patterns in Multiplication
U36	Computation and Algebraic Thinking – Multiply One–Digit Numbers Using Concrete Models	U36	One–Digit by One–Digit Multiplication
U36	Computation and Algebraic Thinking – Multiply One–Digit Numbers Using 1×1 Arrays	U36	Multiplying Two One–Digit Numbers with Arrays
		U36	Problem Solving without Numbers
		ISIP	Relating Multiplication and Division
		ISIP	Practicing Fact Families
		ISIP	Strip Diagrams – Compare
		FP	Multominoes
		FP	Tall Towers
		FP	Dice Blocks
		FP	Multiplication Fast Track

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.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
		U36	Problem Solving without Numbers
		ISIP	Relating Multiplication and Division
		ISIP	Practicing Fact Families
		ISIP	Strip Diagrams – Compare

3.OA.3

Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U36	Computation and Algebraic Thinking – Build and Solve Two–Step Word Problems with All Operations	U36	Build and Solve Two–Step Word Problems with All Operations
		ISIP	Problem Solving without Numbers
		ISIP	Multiplying with Three Factors
		ISIP	Strip Diagrams – Compare Problems
		ISIP	Doubling and Halving

3.OA.4			
Determine the unknown whole number in a multiplication or division equation relating three whole numbers.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U36	Computation and Algebraic Thinking – Build and Solve Two–Step Word Problems with All Operations	U36	Fact Families – Multiplication and Division
		U36	Build and Solve Two–Step Word Problems with All Operations
		ISIP	Relating Multiplication and Division
		ISIP	Practicing Fact Families
		ISIP	Strip Diagrams – Compare Problems
		ISIP	Using the Commutative Property of Multiplication

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

3.OA.5			
Apply properties of operations as strategies to multiply and divide.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U36	Computation and Algebraic Thinking – Properties of Multiplication	ISIP	Using the Commutative Property of Multiplication
		ISIP	Multiplying with Three Factors

3.OA.6			
Understand division as an unknown–factor problem.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U36	Computation and Algebraic Thinking – Fact Families – Multiplication and Division	U36	Fact Families – Multiplication and Division
		ISIP	Relating Multiplication and Division
		ISIP	Practicing Fact Families

Multiply and divide within 100.

3.OA.7			
Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8 or properties of operations. Limit to division without remainders. By the end of Grade 3, know from memory all products of two one–digit numbers.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U35	Computation and Algebraic Thinking – Arithmetic Patterns in Multiplication	U35	Arithmetic Patterns in Multiplication
U36	Computation and Algebraic Thinking – Multiply One–Digit Numbers Using Concrete Models	U36	One–Digit by One–Digit Multiplication
U36	Computation and Algebraic Thinking – Fact Families – Multiplication and Division	U36	Multiplying Two One–Digit Numbers with Arrays
U36	Computation and Algebraic Thinking – Two–Step Word Problems – All Operations	U36	Two–Step Word Problems – All Operations

3.OA.7			
Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8 or properties of operations. Limit to division without remainders. By the end of Grade 3, know from memory all products of two one–digit numbers.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U36	Computation and Algebraic Thinking – Properties of Multiplication	U36	Fact Families – Multiplication and Division
		ISIP	Relating Multiplication and Division
		ISIP	Practicing Fact Families
		ISIP	Strip Diagrams – Compare Problems
		ISIP	Using the Commutative Property of Multiplication
		ISIP	Doubling and Halving
		FP	Multominoes
		FP	Tall Towers
		FP	Dice Blocks
		FP	Wipe Out

Use place value understanding and properties of operations to perform multi-digit arithmetic. A range of strategies and algorithms may be used.

3.OA.8

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

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U36	Computation and Algebraic Thinking – Two–Step Word Problems – All Operations	U36	Problem Solving without Numbers – Addition and Subtraction
		U36	Problem Solving without Numbers – Multiplication and Division
		U36	Two–Step Word Problems – All Operations

3.OA.9

Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U35	Computation and Algebraic Thinking – Arithmetic Patterns in Multiplication	U36	Arithmetic Patterns in Multiplication
		U36	Fact Families – Multiplication and Division
		ISIP	Doubling and Halving
		ISIP	Practicing Fact Families
		ISIP	Relating Multiplication and Division
		ISIP	Using the Commutative Property of Multiplication

Number and Operations in Base Ten

Use place value understanding and properties of operations to perform multi-digit arithmetic. A range of strategies and algorithms may be used.

3.NBT.1

Use place value understanding to round whole numbers to the nearest 10 or 100.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U35	Number Sense – Rounding to the Nearest Ten	U35	Rounding – Nearest Ten
U35	Number Sense – Rounding to the Nearest Hundred	U35	Rounding – Nearest Hundred
		U35	Rounding – Nearest Ten, Hundred, Thousand
		U35	Rounding within Three– and Four–Digit Numbers – Number Line

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.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U36	Computation and Algebraic Thinking – Two–Step Word Problems – All Operations	U36	Two–Step Word Problems – All Operations

3.NBT.3			
Multiply one–digit whole numbers by multiples of 10 in the range 10 – 90, e.g., 9 × 80, 5 × 60 using strategies based on place value and properties of operations.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U35	Computation and Algebraic Thinking – Arithmetic Patterns in Multiplication	U35	Arithmetic Patterns in Multiplication

Number and Operations – Fractions

Develop understanding of fractions as numbers. Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.

3.NF.1			
Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts and size 1/b.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		U37	Fractions Equivalent to One
		U37	Fractions Equivalent to Whole Numbers
		U37	Identifying Equivalent Fractions
		ISIP	Writing Fractions – Symbolic Notation

3.NF.2

Understand a fraction as a number on the number line; represent fractions on a number line diagram.

a. Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line.
b. Represent a fraction a/b (which may be greater than 1) on a number line diagram by marking off a lengths 1/b from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U37	Number Sense – Equivalent Fractions	U37	Fractions Equivalent to One
U37	Number Sense – Fractions Equivalent to One	U37	Fractions Equivalent to Whole Numbers
U37	Number Sense – Many Equivalent Fractions	U37	Mixed Numbers on a Number Line
		U37	Many Equivalent Fractions
		U37	Identifying Equivalent Fractions

3.NF.3

Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

a. Understand two fractions as equivalent (equal) if they are the same size or the same point on a number line.
b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model.
c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.
d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U37	Number Sense – Equivalent Fractions	U37	Fractions Equivalent to One

3.NF.3

Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

a. Understand two fractions as equivalent (equal) if they are the same size or the same point on a number line.
b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model.
c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.
d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U37	Number Sense – Fractions Equivalent to One	U37	Fractions Equivalent to Whole Numbers
U37	Number Sense – Many Equivalent Fractions	U37	Many Equivalent Fractions
U37	Number Sense – Comparing Fractions with Same Numerator	U37	Identifying Equivalent Fractions
U37	Number Sense – Comparing Fractions with Same Denominator	U37	Using Models to Identify Equivalent Fractions
		U37	Mixed Numbers
		U37	Fractions with Same Numerators
		U37	Fractions with Like Denominators
		U37	Whole Numbers and Fractions – Symbols
		ISIP	Identifying Equivalent Fractions Using Area Models
		ISIP	Comparing Fractions Using Models
		ISIP	Comparing Fractions

Measurement and Data

Solve problems involving money, measurement and estimation of intervals of time, liquid volumes, and masses of objects.

3.MD.2			
Measure and estimate liquid volumes and masses of objects using standard units of grams, kilograms, and liters. Add, subtract, multiply, or divide whole numbers to solve one–step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		ISIP	Take Me Out to the Ball Game

Represent and interpret data.

3.MD.3			
Create a scaled picture graphs to represent a data set with several categories. Create a scaled bar graph to represent a data set with several categories. Solve two–step “how many more” and “how many less” problems using information presented in the scaled graphs.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		U39	Solving Two–Step Problems Using Bar Graphs

3.MD.4			
Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by creating a line plot where the horizontal scale is marked off in appropriate units – whole numbers, halves, or quarters.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		U39	Solving Two–Step Problems Using Bar Graphs

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

3.MD.5			
Recognize area as an attribute of plane figures, and understand concepts of area measurement. a. A square with side length 1 unit called “a unit square,” is said to have “one square unit” of area and can be used to measure area. b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		ISIP	Area Square
		ISIP	Finding the Area of Polygons
		ISIP	Finding the Area of Rectangles

3.MD.6			
Measure areas by counting unit squares (square cm, square m, square in, square ft., and improvised units).			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		ISIP	Area Square

3.MD.6

Measure areas by counting unit squares (square cm, square m, square in, square ft., and improvised units).

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
		ISIP	Finding the Area of Polygons
		ISIP	Finding the Area of Rectangles

3.MD.7

Relate area to the operations of multiplication and addition.

a. Find the area of a rectangle with whole number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
b. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real–world and mathematical problems, and represent whole number products as rectangular areas in mathematical reasoning.
c. Use tiling to show in a concrete case that the area of a rectangle with whole number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. (represent the distributive property with visual models including an area model).
d. Recognize area as additive. Find the area of figures composed of rectangles by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real–world problems.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
		ISIP	Area Square
		ISIP	Finding the Area of Polygons
		ISIP	Finding the Area of Rectangles

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

3.MD.8			
Solve real–world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U38	Measurement – Perimeter Word Problems	U38	Perimeter Bundle
		ISIP	Perimeter of Polygons

Geometry

Reason with shapes and their attributes

3.G.2			
Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		ISIP	Recognizing Fractions in Different Forms
		ISIP	Finding the Area of Rectangles

Grade 4

Operations and Algebraic Thinking

Use the four operations with whole numbers to solve problems.

4.OA.1

Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U42	Computation and Algebraic Thinking – Solve Multistep Word Problems	U42	Solve Multistep Word Problems

4.OA.2

Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U42	Computation and Algebraic Thinking – Solve Multistep Word Problems	U42	Solve Multistep Word Problems
		ISIP	Using Multiplication to Solve If-Then Word Problems

4.OA.3			
Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U42	Computation and Algebraic Thinking – Solve Multistep Word Problems	U42	Solve Multistep Word Problems
		ISIP	Using Multiplication to Solve If-Then Word Problems

Gain familiarity with factors and multiples

Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		ISIP	Integrating Fact Practice Using Input/Output Function Tables

Number and Operations in Base Ten

Generalize place value understanding for multi-digit whole numbers less than or equal to 1,000,000.

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, by applying concepts of place value, multiplication or division

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U40	Number Sense – Expanded Form to Thousands	U46	Decimals on a Place Value Mat
U40	Number Sense – Standard Form to Thousands		
U46	Number Sense – Decimal Comparison – Concrete		

4.NBT.2

Read and write multi-digit whole numbers using standard form, word form and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using less than or equal to symbols to record the results of comparisons. Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U40	Number Sense – Expanded Form to Thousands	U40	Writing Expanded Form from Standard through Thousands and Millions
U40	Number Sense – Expanded Form to Millions	U43	Decimals – Standard and Word Form
U40	Number Sense – Writing Expanded Form from Standard Form through Millions		
U40	Number Sense – Standard Form to Thousands		
U43	Number Sense – Word Form of Decimals with Visual Models (0.01-1.99)		
U46	Number Sense – Decimal Comparison – Concrete		

4.NBT.3			
Use place value understanding to round multi-digit whole numbers to any place through 1,000,000.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U40	Number Sense – Rounding to the Nearest Thousand	U40	Rounding – Nearest Thousand
U40	Number Sense – Round to Any Place up to Thousands with Number Line	U40	Rounding – Nearest Ten, Hundred, Thousand
U40	Number Sense – Round to Any Place up to Thousands with Algorithm	U40	Rounding within Three- and Four-Digit Numbers – Number Line
U40	Number Sense – Rounding Zero	U40	Rounding within Three- and Four-Digit Numbers – Algorithm
		U40	Zero as the Rounding Digit

Use place value understanding and properties of operations to perform multi-digit arithmetic with whole numbers less than or equal to 1,000,000.

4.NBT.4			
Fluently add and subtract multi-digit whole numbers using the standard algorithm.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		ISIP	Adding Multi-digit Numbers and Checking for Reasonableness

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.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U41	Multiply Two-Digit Numbers with Models	U41	Two-Digit by Two-Digit Concrete Multiplication

Number and Operations – Fractions

Extend understanding of fraction equivalence and ordering limited to fractions with denominators 2. 3. 4. 5. 6. 8, 10, 12 and 100.

4.NF.1			
Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U43	Number Sense - Equivalent Fractions with Models	U43	Fraction Comparison with Benchmark Fractions
U43	Number Sense - Comparing Fractions using Benchmark Fractions	U43	Compare Fractions Using Common Denominators Fractions
		U43	Expressing Equivalent Fractions with Denominators of 10 and 100
		U43	Add Fractions with Denominators of 10 and 100

4.NF.2

Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U43	Number Sense - Equivalent Fractions with Models	U43	Benchmark Fractions
U43	Number Sense - Comparing Fractions using Benchmark Fractions	U43	Fractions - Symbols
U43	Number Sense - Comparing Fractions with Unlike Denominators	U43	Compare Fractions by Creating Common Denominators
		U43	Compare Fractions by Creating Common Denominators
		ISIP	Comparing Fractions
		ISIP	Using Area Models to Compare Fractions

Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers limited to fraction with denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100 (fractions need not be simplified).

4.NF.3

Understand a fraction *a*/*b* with *a* > 1 as a sum of fractions 1/*b*.

a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.
c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U43	Number Sense - Decomposing Fractions	U43	Adding Like Denominators of 10 and 100
U43	Number Sense - Adding Fractions with Denominators of Ten and One Hundred		
U43	Number Sense – Add Fractions with Both Denominators of 10 and 100		
U43	Number Sense – Decomposing 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.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U43	Number Sense - Equivalent Fractions with Models	U43	Fraction Comparison with Benchmark Fractions
U43	Number Sense - Comparing Fractions using Benchmark Fractions	U43	Compare Fractions Using Common Denominators 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.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		U43	Expressing Equivalent Fractions with Denominators of 10 and 100
		U43	Add Fractions with Denominators of 10 and 100

Measurement and Data

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

4.MD.1			
Know relative sizes of the metric measurement units within one system of units. Metric units include km, m, cm, and mm; kg, g; and l, ml. Express a larger measurement unit in terms of a smaller unit. Record measurement conversions in a two-column table			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		U44	Converting Units of Measurement in Word Problems

4.MD.3			
Develop efficient strategies to determine the area and perimeter of rectangles in real-world situations and mathematical problems.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		ISIP	Finding Area of Rectangles and Squares by Using Multiplication
		ISIP	Quantifying Areas of Rectangles and Squares
		ISIP	Making Connections Between Multiplication and Area

Represent and interpret data.

4.MD.4			
Display and interpret data in graphs (picture graphs, bar graphs, and line plots) to solve problems using numbers and operations for this grade.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U39	Data Analysis – Two Step Word Problems with Bar Graphs	U39	Data Analysis – Two Step Word Problems with Bar Graphs
U45	Data Analysis – Line Plots with Fractional Data	U45	Line Plots with Fractional Data
U45	Data Analysis – Analyzing Line Plots		

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:

a. Understand 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.
b. Understand an angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
		U45	Measuring Angles with a Protractor

4.MD.6

Measure angles in whole number degrees using a protractor. Sketch angles of specified measure.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U45	Geometry – Measuring Angles with a Protractor	U45	Measuring Angles with a Protractor
		ISIP	Line and Angle Identification

4.MD.7

Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U45	Geometry – Missing Angles	U45	Measuring Angles with a Protractor

4.MD.7			
Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		ISIP	Decomposing Figures to Find the Area of Polygons

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.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		U45	Measuring Angles with a Protractor
		ISIP	Line and Angle Identification

Grade 5

Operations and Algebraic Thinking

Write and interpret numerical expressions.

5.OA.1			
Use parentheses in numerical expressions, and evaluate expressions with this symbol. Formal use of algebraic order of operations is not necessary			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U49	Computation and Algebraic Reasoning - Evaluate Numerical Expressions with Parentheses	U49	Evaluating Numerical Expressions with Parentheses
U49	Computation and Algebraic Reasoning - Interpret Numerical Expressions with Parentheses	U49	Identifying Expressions in Scenarios
U49	Computation and Algebraic Reasoning - Write Numerical Expressions from Words	U49	Writing Expressions from Words - Addition and Subtraction
		U49	Writing Expressions from Words - Subtraction

5.OA.2			
Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U49	Computation and Algebraic Reasoning - Evaluate Numerical Expressions with Parentheses	U49	Evaluating Numerical Expressions with Parentheses

5.OA.2			
Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U49	Computation and Algebraic Reasoning – Interpret Numerical Expressions with Parentheses	U49	Identifying Expressions in Scenarios
U49	Computation and Algebraic Reasoning – Write Numerical Expressions from Words	U49	Writing Expressions from Words - Addition and Subtraction
		U49	Writing Expressions from Words - Subtraction

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.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U51	Computation and Algebraic Thinking – Comparing Points on a Coordinate Plane	U51	Comparing Points on a Coordinate Plane
		ISIP	Identifying and Plotting Ordered Pairs on the Coordinate Plane

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.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U46	Number Sense – Multiplying Decimals by 10 and 100	U46	Multiplying Decimals by 10 and 100
U46	Number Sense – Dividing Decimals by 10 and 100	U46	Dividing Decimals by 10 and 100
U46	Number Sense – Exploring Powers of 10	U46	Multiplying and Dividing Decimals by Powers of 10
U46	Number Sense – Multiplying and Dividing Decimals by Powers of 10	U46	Exploring Powers of 10

5.NBT.2

Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole number exponents to denote powers of 10.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U46	Number Sense – Multiplying Decimals by 10 and 100	U46	Multiplying Decimals by 10 and 100
U46	Number Sense – Dividing Decimals by 10 and 100	U46	Dividing Decimals by 10 and 100
U46	Number Sense – Exploring Powers of 10	U46	Multiplying and Dividing Decimals by Powers of 10
U46	Number Sense – Multiplying and Dividing Decimals by Powers of 10	U46	Exploring Powers of 10

5.NBT.3

Read, write, and compare decimals to thousandths.

a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000).
b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U46	Number Sense - Abstract Comparison of Thousandths	U46	Abstract Decimal Comparison
		U46	Decimal Comparison on the Number Line
		U46	Decimals to Whole Numbers

5.NBT.4

Use place value understanding to round decimals to any place, millions through hundredths.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U46	Number Sense – Round Decimals on the Number Line	U46	Rounding Decimals on the Number Line
U46	Number Sense – Round Decimals with the Rounding Algorithm	U46	Rounding Decimals with the Rounding Algorithm
U46	Number Sense – Round Decimals with Whole Numbers		

Perform operations with multi-digit whole numbers and with decimals to hundredths.

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.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U47	Computation and Algebraic Thinking – Divide Four-Digit Numbers by Two-Digit Numbers	U47	Four-Digit by Two-Digit Division (Partial Quotients)
		ISIP	Estimating Quotients Using Compatible Numbers
		ISIP	Inverse Operations and Fact Families to Solve Simple Equations
		ISIP	Solving Multiplication and Division Word Problems with Diagrams
		ISIP	Using Models to Practice Extended Division Facts

Number and Computation and Algebraic Thinking – 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 and fractions greater than 1) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U48	Computation and Algebraic Thinking – Add Fractions with Unlike Denominators	U48	Adding Fractions with Unlike Denominators

5.NF.1			
Add and subtract fractions with unlike denominators (including mixed numbers and fractions greater than 1) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		ISIP	Adding and Subtracting Fractions with Unlike Denominators

5.NF.2			
Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
U48	Computation and Algebraic Thinking – Add Fractions with Unlike Denominators	U48	Subtracting Fractions with Unlike Denominators
U48	Computation and Algebraic Thinking – Subtract Fractions with Unlike Denominators	ISIP	Adding and Subtracting Fractions with Unlike Denominators
U48	Computation and Algebraic Thinking – Add Fractions with Unlike Denominators		
U48	Computation and Algebraic Thinking – Subtract Fractions with Unlike Denominators		

Apply and extend previous understandings of multiplication and division to multiply and divide fractions. (Fractions need not be simplified).

5.NF.4

Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

a. Interpret the product (a/b) × q as a parts of a partition of q into b equal parts, equivalently, as the result of a sequence of operations a × q ÷ b.
b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U48	Computation and Algebraic Thinking – Multiply by Fractions Less Than One	U48	Multiplying by Fractions Less Than One
		U48	Multiplying by Fractions Less Than One (Extra Practice)
		U48	Multiplying Fractions Less Than One with Improper Fractions
		U48	Multiplying Whole Numbers by Fractions Greater than One

5.NF.5

Interpret multiplication as scaling (resizing), by:

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.
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); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence a/b = (n×a) /(n×b) to the effect of multiplying a/b by 1.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U48	Computation and Algebraic Thinking – Multiply by Fractions Less Than One	U48	Multiplying by Fractions Less Than One

5.NF.5

Interpret multiplication as scaling (resizing), by:

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.
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); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence a/b = (n×a) /(n×b) to the effect of multiplying a/b by 1.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U48	Computation and Algebraic Thinking – Multiply by Fractions Less than One	U48	Multiplying by Fractions Less Than One
		U48	Multiplying by Fractions Less Than One (Extra Practice)
		U48	Multiplying Fractions Less Than One with Improper Fractions
		U48	Multiplying Whole Numbers by Fractions Greater than One

5.NF.6

Solve real-world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
		U48	Multiplying by Fractions Less Than One
		U48	Multiplying by Fractions Less Than One (Extra Practice)
		U48	Multiplying Fractions Less Than One with Improper Fractions

5.NF.6			
Solve real-world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		U48	Multiplying Whole Numbers by Fractions Greater than One

Measurement and Data

Convert like measurement units within a given measurement system.

5.MD.1			
Know relative sizes of these U.S. customary measurement units: pounds, ounces, miles, yards, feet, inches, gallons, quarts, pints, cups, fluid ounces, hours, minutes, and seconds. Convert between pounds and ounces; miles and feet; yards, feet, and inches; gallons, quarts, pints, cups, and fluid ounces; hours, minutes, and seconds in solving multi-step, real-world problems.			
MP 1, 2, 3, 4, 5, 6, 7, 8			
Code	**Digital Student Experience**	**Code**	**Teacher Resources**
		ISIP	Converting Standard Units of Measurement
		ISIP	Performing Customary Measurement Conversions

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.

a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume and can be used to measure volume.
b. A solid figure that can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U50	Measurement - Volume of Irregular Figures	U50	Volume of Irregular Figures
		ISIP	Volume as an Attribute of Three-Dimensional Space
		ISIP	Quantifying Volume: Counting Same-sized Units

5.MD.4

Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft., and improvised units.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U50	Measurement - Volume of Irregular Figures	U50	Volume of Irregular Figures
		ISIP	Volume as an Attribute of Three-Dimensional Space
		ISIP	Quantifying Volume: Counting Same-sized Units

5.MD.5

Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume.

a. Find the volume of a right rectangular prism with whole number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole number products as volumes, e.g., to represent the Associative Property of Multiplication.
b. Apply the formulas $V = \ell \times w \times h$ 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.
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.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U50	Measurement - Volume of Irregular Figures	U50	Volume of Rectangular Prisms
		ISIP	Volume as an Attribute of Three-Dimensional Space
		ISIP	Calculating Volume in Multistep Word Problems
		ISIP	Integrating Fact Practice and Volume
		ISIP	Quantifying Volume: Counting Same-sized Units

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.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U51	Geometry – Graph Points in a Coordinate Plane	U51	Plotting Points on a Coordinate Grid
		U51	Graphing and Analyzing Lines
		ISIP	Identifying and Plotting Ordered Pairs on the Coordinate Plane

5.G.2

Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

MP 1, 2, 3, 4, 5, 6, 7, 8

Code	Digital Student Experience	Code	Teacher Resources
U51	Geometry – Graph Points in a Coordinate Plane	U51	Plotting Points on a Coordinate Grid
U51	Geometry – Comparing Points on a Coordinate Plan	U51	Graphing and Analyzing Lines