

5th Grade Math Unit and Lesson Plans, rev. 2019
DHH Lengel Middle School
Pottsville, PA

Block Length: 75 minutes
Blocks per cycle: 5
Length of Course: One Year
Developed by: Amy Digris and Nathan Kraft, lead teachers

The Grade 5 curriculum is based on the newly adopted Pearson enVision 2.0 program. It begins with place value and is followed by computation of decimals and fractions. The second half of the year looks at data, volume, measurement, numerical expressions, the coordinate plane, algebraic patterns and two-dimensional figures.

Resources: Pearson enVision 2.0,
Online Resources Include: Pearson Realize, Khan Academy

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Marking Period	Units	Standards and Eligible Content	Assessments	Lessons	Objectives	Vocabulary
1	1 Understand Place Value	<p>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.</p> <p>M05.A-T.1.1.1 Demonstrate an understanding that in a multi-digit number, a digit in one place represents $\frac{1}{10}$ of what it represents in the place to its left. Example: Recognize that in the number 770, the 7 in the tens place is $\frac{1}{10}$ the 7 in the hundreds place.</p> <p>M05.A-T.1.1.2 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. Example 1: $4 \times 10^2 = 400$ Example 2: $0.05 \div 10^3 = 0.00005$</p> <p>M05.A-T.1.1.3 Read and write decimals to thousandths using base-ten numerals, word form, and expanded form. Example: $347.392 = 300 + 40 + 7 + 0.3 + 0.09 + 0.002 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (0.1) + 9 \times (0.01) + 2 \times (0.001)$</p> <p>M05.A-T.1.1.4 Compare two decimals to thousandths based on meanings of the digits in each place using $>$, $=$, and $<$ symbols.</p> <p>M05.A-T.1.1.5 Round decimals to any place (limit rounding to ones, tenths, hundredths, or thousandths place).</p>	Quizzes, Test, Open-Ended Questions, Khan Academy	1-1 Patterns with Exponents and Powers of 10	Use exponents to write powers of 10 and calculate products.	exponent, power, base
				1-2 Understand Whole-Number Place Value	Read and write whole numbers using standard form, expanded form, and number names.	value, expanded form
				1-3 Decimals to Thousandths	Represent decimals to thousandths as fractions and fractions with denominators of 1,000 as decimals.	thousandths
				1-4 Understand Decimal Place Value	Read and write decimals through thousandths in different ways.	equivalent decimals
				1-5 Compare Decimals	Use place value to compare decimals through thousandths.	
				1-6 Round Decimals	Round decimals to different places.	
				1-7 Look For and Use Structure	Use the structure of the decimal place-value system to solve problems involving patterns.	

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1	2 Add and Subtract Decimals to Hundredths	CC.2.1.5.B.2 Extend an understanding of operations with whole numbers to perform operations including decimals. M05.A-T.2.1.3 Add, subtract, multiply, and divide decimals to hundredths (no divisors with decimals).	Quizzes, Test, Open-Ended Questions, Khan Academy	2-1 Mental Math	Use properties of addition and strategies to solve problems mentally.	compatible numbers, Associative Property of Addition, Commutative Property of Addition, compensation
				2-2 Estimate Sums and Differences	Use rounding or compatible numbers to estimate sums and differences.	
				2-3 Use Models to Add and Subtract Decimals	Model sums and differences of decimals.	
				2-4 Add Decimals	Add decimals to the hundredths using the standard algorithm.	
				2-5 Subtract Decimals	Subtract decimals to the hundredths using the standard algorithm.	
				2-6 Model with Math	Use prior math knowledge and equations or bar diagrams to solve problems.	

1	3 Fluently Multiply Multi-Digit Whole Numbers	CC.2.1.5.B.2 Extend an understanding of operations with whole numbers to perform operations including decimals. M05.A-T.2.1.1 Multiply multi-digit whole numbers (not to exceed three-digit by three-digit).	Quizzes, Test, Open-Ended Questions, Khan Academy	3-1 Multiply Greater Numbers by Powers of 10	Use place value understandings and patterns to mentally multiply whole numbers and powers of 10.	
				3-2 Estimate Products	Use rounding and compatible numbers to estimate products.	underestimate, overestimate
				3-3 Multiply by 1-Digit Numbers	Use place value and the standard algorithm to multiply multi-digit numbers by 1-digit numbers.	partial products
				3-4 Multiply 2-Digit by 2-Digit Numbers	Use the expanded and the standard algorithm to multiply 2-digit by 2-digit numbers. Estimate to check if products are reasonable.	
				3-5 Multiply 3-Digit by 2-Digit Numbers	Multiply 3-digit by 2-digit numbers by combining equal groups and adding partial products.	
				3-6 Multiply Whole Numbers with Zeros	Use knowledge about place value and multiplying with 2-digit and 3-digit numbers to multiply with zeros.	
				3-7 Practice Multiplying Multi-Digit Numbers	Use properties and the standard algorithm for multiplication to find the product of multi-digit numbers.	
				3-8 Solve Word Problems using Multiplication	Use models and strategies to solve word problems.	variable
				3-9 Critique Reasoning	Critique the reasoning of others by asking questions, looking for flaws, and using prior knowledge of estimating products.	

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1	4 Use Models and Strategies to Multiply Decimals	CC.2.1.5.B.2 Extend an understanding of operations with whole numbers to perform operations including decimals. M05.A-T.2.1.3 Add, subtract, multiply, and divide decimals to hundredths (no divisors with decimals).	Quizzes, Test, Open-Ended Questions, Khan Academy	4-1 Multiply Decimals by Powers of 10	Use knowledge about place value and patterns to find the product of a decimal number and a power of 10.	
				4-2 Estimate the Product of a Decimal and a Whole Number	Use rounding and compatible numbers to estimate the product of a decimal and a whole number.	
				4-3 Use Models to Multiply a Decimal and a Whole Number	Use models to represent multiplying a decimal and a whole number.	
				4-4 Multiply a Decimal by a Whole Number	Use place-value understanding and the standard multiplication algorithm to multiply a decimal by a whole number.	
				4-5 Use Models to Multiply a Decimal and a Decimal	Use grids to model decimals and find the product of a decimal and a decimal.	
				4-6 Multiply Decimals using Partial Products	Multiply decimals using partial products and models.	
				4-7 Use Properties to Multiply Decimals	Use properties to multiply decimals.	
				4-8 Use Number Sense to Multiply Decimals	Use number sense and reasoning to place the decimal point in a product.	
				4-9 Model with Math	Use previously learned concepts and skills to represent and solve problems.	

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1&2	5 Use Models and Strategies to Divide Whole Numbers	CC.2.1.5.B.2 Extend an understanding of operations with whole numbers to perform operations including decimals. M05.A-T.2.1.2 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors.	Quizzes, Test, Open-Ended Questions, Khan Academy	5-1 Use Patterns and Mental Math to Divide	Use place-value patterns and mental math to find quotients.	
				5-2 Estimate Quotients with 2-Digit Divisors	Use compatible numbers and place-value patterns to estimate quotients.	
				5-3 Use Models to Divide with 2-Digit Divisors	Use models to find quotients.	
				5-4 Use Partial Products to Divide	Solve division problems using partial quotients.	
				5-5 Use Sharing to Divide: 2-Digit Divisors	Use place value and sharing to divide by 2-digit divisors.	
				5-6 Use Sharing to Divide: Greater Dividends	Use place value and sharing to divide greater dividends.	
				5-7 Choose a Strategy to Divide	Select different strategies to divide 3- and 4-digit numbers by 2-digit numbers.	
				5-8 Make Sense and Persevere	Make sense of problems and keep working.	

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2	6 Use Models and Strategies to Divide Decimals	CC.2.1.5.B.2 Extend an understanding of operations with whole numbers to perform operations including decimals. M05.A-T.2.1.3 Add, subtract, multiply, and divide decimals to hundredths (no divisors with decimals).	Quizzes, Test, Open-Ended Questions, Khan Academy	6-1 Patterns for Dividing with Decimals	Use mental math and place-value patterns to divide a decimal by a power of 10.	
				6-2 Estimate Decimal Quotients	Use reason and strategies such as rounding and compatible numbers to estimate quotients in problems with decimals.	
				6-3 Use Models to Divide by a 1-Digit Whole Number	Use models to help find quotients in problems involving decimals.	
				6-4 Divide by a 2-Digit Whole Number	Use models to visualize the relationship between division and multiplication to divide decimals by a 2-digit whole number.	
				6-5 Divide by a Decimal	Use the standard algorithm and place-value patterns to divide a decimal by another decimal.	
				6-6 Reasoning	Use reasoning to solve problems by making sense of quantities and relationships in the situation.	

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2	7 Use Equivalent Fractions to Add and Subtract Fractions	CC.2.1.5.C.1 Use the understanding of equivalency to add and subtract fractions. M05.A-F.1.1.1 Add and subtract fractions (including mixed numbers) with unlike denominators. (May include multiple methods and representations.) Example: $2/3 + 5/4 = 8/12 + 15/12 = 23/12$	Quizzes, Test, Open-Ended Questions, Khan Academy	7-1 Estimate Sums and Differences of Fractions	Estimate sums and differences of fractions by using the nearest half or whole number.	benchmark fraction
				7-2 Find Common Denominators	Find common denominators for fractions with unlike denominators.	equivalent fractions, common denominator
				7-3 Add Fractions with Unlike Denominators	Add fractions with unlike denominators using equivalent fractions with a common denominator.	
				7-4 Subtract Fractions with Unlike Denominators	Subtract fractions with unlike denominators.	
				7-5 Add and Subtract Fractions	Write equivalent fractions to add and subtract fractions with unlike denominators.	
				7-6 Estimate Sums and Differences of Mixed Numbers	Estimate sums and differences of fractions and mixed numbers.	mixed number
				7-7 Use Models to Add Mixed Numbers	Add mixed numbers using models.	
				7-8 Add Mixed Numbers	Add mixed numbers using equivalent fractions and a common denominator.	
				7-9 Use Models to Subtract Mixed Numbers	Use models to subtract mixed numbers.	
				7-10 Subtract Mixed Numbers	Subtract mixed numbers using equivalent fractions and a common denominator.	
				7-11 Add and Subtract Mixed Numbers	Add and subtract mixed numbers using equivalent fractions and a common denominator.	
				7-12 Model with Math	Represent a problem situation with a mathematical model.	

2&3	8 Apply Understanding of Multiplication to Multiply Fractions	<p>CC.2.1.5.C.2 Apply and extend previous understandings of multiplication and division to multiply and divide fractions.</p> <p>M05.A-F.2.1.2 Multiply a fraction (including mixed numbers) by a fraction.</p> <p>M05.A-F.2.1.3 Demonstrate an understanding of multiplication as scaling (resizing).</p> <p>Example 1: Comparing the size of a product to the size of one factor on the basis of the size of the other factor without performing the indicated multiplication. Example 2: Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number.</p>	Quizzes, Test, Open-Ended Questions, Khan Academy	8-1 Multiply a Fraction by a Whole Number	Multiply a fraction by a whole number.	
				8-2 Multiply a Whole Number by a Fraction	Multiply a whole number by a fraction.	
				8-3 Multiply Fractions and Whole Numbers	Multiply fractions and whole numbers.	
				8-4 Use Models to Multiply Two Fractions	Use models to multiply two fractions.	
				8-5 Multiply Two Fractions	Multiply two fractions.	
				8-6 Area of a Rectangle	Find the area of a rectangle using fractions and diagrams.	
				8-7 Multiply Mixed Numbers	Use models, equations, and previously learned strategies to multiply mixed numbers.	
				8-8 Multiplication as Scaling	Compare the size of the product to the size of one factor without multiplying to consider multiplication as scaling.	
				8-9 Make Sense and Persevere	Use previously learned knowledge to make sense of problems and persevere in solving them.	

3	9 Apply Understanding of Division to Divide Fractions	<p>CC.2.1.5.C.2 Apply and extend previous understandings of multiplication and division to multiply and divide fractions.</p> <p>M05.A-F.2.1.1 Solve word problems involving division of whole numbers leading to answers in the form of fractions (including mixed numbers).</p> <p>M05.A-F.2.1.4 Divide unit fractions by whole numbers and whole numbers by unit fractions.</p>	Quizzes, Test, Open-Ended Questions, Khan Academy	9-1 Fractions and Division	Understand how fractions are related to division.	
				9-2 Fractions and Mixed Numbers as Quotients	Implement division of fractions to show quotients as fractions and mixed numbers.	
				9-3 Use Multiplication to Divide	Use multiplication to divide a whole number by a unit fraction.	
				9-4 Divide Whole Numbers by Unit Fractions	Use models such as pictorial models or a number line to show dividing a whole number by a unit fraction.	
				9-5 Divide Unit Fractions by Non-Zero Whole Numbers	Use models to divide unit fractions by non-zero whole numbers.	
				9-6 Divide Whole Numbers and Unit Fractions	Use models to divide whole numbers and unit fractions. Check your answer using multiplication.	
				9-7 Solve Problems using Division	Solve multi-step problems involving division with unit fractions.	
				9-8 Repeated Reasoning	Notice repetition in calculations and generalize about how to divide whole numbers and unit fractions.	
3	10 Represent and Interpret Data	<p>CC.2.4.5.A.2 Represent and interpret data using appropriate scale.</p> <p>CC.2.4.5.A.4 Solve problems involving computation of fractions using information provided in a line plot.</p> <p>M05.D-M.2.1.1 Solve problems involving computation of fractions by using information presented in line plots.</p> <p>M05.D-M.2.1.2 Display and interpret data shown in tallies, tables, charts, pictographs, bar graphs, and line graphs, and use a title, appropriate scale, and labels. A grid will be provided to display data on bar graphs or line graphs.</p>		10-1 Analyze Line Plots	Read and analyze line plots.	data, line plot, outlier
				10-2 Make Line Plots	Organize and display data in a line plot.	
				10-3 Solve Word Problems Using Measurement Data	Solve problems using data in a line plot.	
				10-4 Critique Reasoning	Critique the reasoning of others using understanding of line plots and fractions.	

3	11 Understand Volume Concepts	<p>CC.2.4.5.A.5 Apply concepts of volume to solve problems and relate volume to multiplication and to addition.</p> <p>M05.D-M.3.1.1 Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems. Formulas will be provided.</p> <p>M05.D-M.3.1.2 Find volumes of solid figures composed of two non-overlapping right rectangular prisms.</p>		11-1 Model Volume	Find the volume of solid figures.	volume, cubic unit, cube, rectangular prism, unit cube
				11-2 Develop a Volume Formula	Find the volume of rectangular prisms using a formula.	formula
				11-3 Combine Volumes of Prisms	Find the volume of a solid figure that is the combination of two or more rectangular prisms.	
				11-4 Solve Word Problems using Volume	Use models, prior knowledge of volumes, and previously learned strategies to solve word problems involving volume.	
				11-5 Use Appropriate Tools	Use previously learned knowledge about volumes to choose the appropriate tools to solve volume problems.	
3	12 Convert Measurements	<p>CC.2.4.5.A.1 Solve problems using conversions within a given measurement system.</p> <p>M05.D-M.1.1.1 Convert between different-sized measurement units within a given measurement system. A table of equivalencies will be provided. Example: Convert 5 cm to meters.</p>		12-1 Convert Customary Units of Length	Convert customary units of length.	foot, inch, yard, mile
				12-2 Convert Customary Units of Capacity	Convert customary units of capacity.	capacity, gallon, quart, pint, cup, fluid ounce
				12-3 Convert Customary Units of Weight	Convert customary units of weight.	weight, ton, pound, ounce
				12-4 Convert Metric Units of Length	Convert metric units of length.	kilometer, meter, centimeter, millimeter
				12-5 Convert Metric Units of Capacity	Convert metric units of capacity.	liter, milliliter
				12-6 Convert Metric Units of Mass	Convert metric units of mass.	mass, milligram, gram, kilogram
				12-7 Convert Units of Time	Convert units of time.	
				12-8 Solve Word Problems Using Measurement Conversions	Solve real-world problems with measurement conversions.	
				12-9 Precision	Be precise when solving measurement problems.	

3&4	13 Write and Interpret Numerical Expressions	<p>CC.2.2.5.A.1 Interpret and evaluate numerical expressions using order of operations.</p> <p>M05.B-O.1.1.1 Use multiple grouping symbols (parentheses, brackets, or braces) in numerical expressions and evaluate expressions containing these symbols.</p> <p>M05.B-O.1.1.2 Write simple expressions that model calculations with numbers and interpret numerical expressions without evaluating them. Example 1: Express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Example 2: Recognize that $3 \times (18,932 + 921)$ is three times as large as $18,932 + 921$ without having to calculate the indicated sum or product</p>	13-1 Evaluate Expressions	Evaluate expressions with parentheses, brackets, and braces.	numerical expression, Order of Operations, Parentheses, brackets, braces
			13-2 Write Numerical Expressions	Write simple expressions that show calculations with numbers.	
			13-3 Interpret Numerical Expressions	Interpret numerical expressions without evaluating them.	
			13-4 Reasoning	Use reasoning to solve problems by making sense of quantities and relationships in the situation.	
4	14 Graph Points on the Coordinate Plane	<p>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> <p>M05.C-G.1.1.1 Identify parts of the coordinate plane (x-axis, y-axis, and the origin) and the ordered pair (x-coordinate and y-coordinate). Limit the coordinate plane to quadrant I.</p> <p>M05.C-G.1.1.2 Represent real-world and mathematical problems by plotting points in quadrant I of the coordinate plane and interpret coordinate values of points in the context of the situation.</p>	14-1 The Coordinate System	Use an ordered pair to locate points on a coordinate grid.	coordinate grid, ordered pair, x-axis, y-axis, origin, x-coordinate, y-coordinate
			14-2 Graph Data using Ordered Pairs	Graph points on a coordinate grid.	
			14-3 Solve Problems using Ordered Pairs	Graph points to solve real-world problems.	
			14-4 Reasoning	Use reasoning to solve problems by making sense of quantities and relationships in the situation.	
4	15 Algebra: Analyze Patterns and Relationships	<p>CC.2.2.5.A.4 Analyze patterns and relationships using two rules.</p> <p>M05.B-O.2.1.1 Generate two numerical patterns using two given rules. Example: Given the rule “add 3” and the starting number 0 and given the rule “add 6” and the starting number 0, generate terms in the resulting sequences.</p> <p>M05.B-O.2.1.2 Identify apparent relationships between corresponding terms of two patterns with the same starting numbers that follow different rules. Example: Given two patterns in which the first pattern follows the rule “add 8” and the second pattern follows the rule “add 2,” observe that the terms in the first pattern are 4 times the size of the terms in the second pattern.</p>	15-1 Numerical Patterns	Extend and analyze numerical patterns.	corresponding terms, number sequence
			15-2 More Numerical Patterns	Extend and analyze numerical patterns.	
			15-3 Analyze and Graph Relationships	Graph ordered pairs created from two number sequences and analyze patterns.	
			15-4 Make Sense and Persevere	Make sense of problems and persevere in solving them.	

4	16 Geometric Measurement: Classify Two-Dimensional Figures	<p>CC.2.3.5.A.2 Classify two-dimensional figures into categories based on an understanding of their properties.</p> <p>M05.C-G.2.1.1 Classify two-dimensional figures in a hierarchy based on properties.</p> <p>Example 1: All polygons have at least three sides, and pentagons are polygons, so all pentagons have at least three sides. Example 2: A rectangle is a parallelogram, which is a quadrilateral, which is a polygon; so, a rectangle can be classified as a parallelogram, as a quadrilateral, and as a polygon</p>		16-1 Classify Triangles	Classify triangles by their angles and sides.	equilateral triangle, isosceles triangle, scalene triangle, right triangle, acute triangle, obtuse triangle
				16-2 Classify Quadrilaterals	Classify quadrilaterals by their properties.	trapezoid, parallelogram, rectangle, rhombus, square
				16-3 Continue to Classify Quadrilaterals	Classify quadrilaterals using a hierarchy.	
				16-4 Construct Arguments	Construct arguments about geometric figures.	