Numbers and operations in Base Ten

Big Idea

M05.A-T.1 Understand the place-value system

MO5.A-T.1.1 Demonstrate understanding of place-value of whole numbers and decimals, and compare quantities or magnitudes of numbers		**How do we demonstrate an understanding of place-value of whole numbers and decimals, and compare quantities or magnitudes of numbers**	
Concepts	**Competencies**	**Resources**	**Assessments**
• M05.A-T.1.1.1 - Demonstrate an understanding that in a multi-digit number, a digit in one place represents 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 1/10 the 7 in the hundreds place. • 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 × 10^2 = 400 Example 2: 0.05 ÷ 10^3 = 0.00005	**CC.2.1.5.B.1** Apply place value concepts to show an understanding of operations and rounding as they pertain to whole numbers		

• M05.A-T.1.1.3 - Read and write decimals to thousandths using base-ten numerals, word form, and expanded form • M05.A-T.1.1.4 - Compare two decimals to thousandths based on meanings of the digits in each place using >, =, and < symbols. • M05.A-T.1.1.5 - Round decimals to any place (limit rounding to ones, tenths, hundredths, or thousandths place).			
Vocabulary: place value, round, base, exponent , powers of ten, rounding			

CC.2.1.5.C.2
Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

MO5.A-T Numbers and Operations – Fractions
Big Idea
M05.AF.1 - Use equivalent fractions as a strategy to add and subtract fractions.

MO5..A-F1.1 Solve addition and subtraction problems involving fractions (straight computation or word problems).		How do we solve addition and subtraction problems involving fractions (straight computation or word problems).	
Concepts	**Competencies**	**Resources**	**Assessments**
M05.A-F.1.1.1 Add and subtract fractions (including mixed numbers) with unlike denominators.	CC.2.1.5.C.1 Use the understanding of equivalency to add and subtract fractions.		
Vocabulary: Numerator, denominator, Mixed number, Proper fraction, Improper fraction, difference, sum, equivalent fractions, reduce			

MO5.A-T Numbers and Operations - Fractions			
Big Idea **M05.A-F.2 Apply and extend understandings of multiplication and division to multiply and divide fractions.**			
MO5.A-F.2.1 Solve multiplication and division problems involving fractions and whole numbers (straight computation or word problems)		**How do we solve multiplication and division problems involving fractions and whole numbers (straight computation or word problems)**	
Concepts	**Competencies**	**Resources**	**Assessments**
M05.A-F.2.1.1 Solve word problems involving division of whole numbers with answers in the form of fractions (including mixed numbers).	CC.2.1.5.C.2 Apply and extend previous understandings of multiplication and division to multiply and divide fractions.		

M05.A-F.2.1.2 Multiply a fraction (including mixed numbers) by a fraction. **M05.A-F.2.1.3** Demonstrate an understanding of multiplication as scaling (resizing). *: 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.* *2. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number* *3. explaining why multiplying a given number by a fraction less than results in a product smaller than the given number.* **M05.A-F.2.1.4** **1.** Divide unit fractions by whole numbers. **2.** Divide whole numbers by unit fractions.			
Vocabulary: Factor, product, quotient, unit fraction, mixed number			

MO5.A-T Operations and Agebraic Thinking
Big Idea **MO5B-O.1.1 Write and interpret numerical expressions.**

M05.B-O.1.1 Analyze and complete calculations by applying the order of operations.		**How do we solve multiplication and division problems involving fractions and whole numbers (straight computation or word problems)**	
Concepts	**Competencies**	**Resources**	**Assessments**
M05.B-O.1.1.1 Use multiple grouping symbols (parentheses, brackets, or braces) in numerical expressions and evaluate expressions containing these symbols. **M05.B-O.1.1.2** Write simple expressions that model calculations with numbers and interpret numerical expressions without evaluating them. 1. *: Express the calculation "add 8 and 7,then multiply by 2" as 2 × (8 + 7).* 2. *Recognize that 3 × (18,932 + 921) isthree times as large as 18,932 + 921 without having to calculate the indicated sum or product*	CC.2.2.5.A.1 Interpret and evaluate numerical expressions using order of operations.		
Vocabulary: Factor, product, quotient, unit fraction, mixed number			
MO5.A-T Operations and Agebraic Thinking			
Big Idea **MO5B-O.1.1 Write and interpret numerical expressions.**			

MO5.AB-O Operations and Agebraic Thinking			
M05.B-O.2.1 Create, extend, and analyze patterns.		How do we create, extend, and analyze patterns.	
Concepts	**Competencies**	**Resources**	**Assessments**
M05.B-O.2.1.1 Generate two numerical patterns using two given rules. **M05.B-O.2.1.2** Identify apparent relationships between corresponding terms of two patterns with the same starting numbers that follow different rules.	CC.2.2.5.A.4 Analyze patterns and relationships using two rules.		
Vocabulary			

M05.C-G Geometry			
M05.C-G.1.1 Identify parts of a coordinate grid and describe or interpret points given an ordered pair.		How do we identify parts of a coordinate grid and describe or interpret points given an ordered pair	
Concepts	**Competencies**	**Resources**	**Assessments**
•**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	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.		

coordinate plane to quadrant I. **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. -			
Vocabulary:			
M05.C-G Geometry			
Big Idea **M05.C-G.2 Classify two-dimensional figures into categories based on their properties.**			
M05.C-G.2.1 Use basic properties to classify two-dimensional figures		How do we use basic properties to classify two-dimensional figures	
Concepts	**Competencies**	**Resources**	**Assessments**

M05.C-G.2.1.1 Classify two-dimensional figures in a hierarchy based on properties •	CC.2.3.5.A.2 Classify two-dimensional figures into categories based on an understanding of their properties..		
Vocabulary:			

M05.D-M Measurement and Data

Big Idea
M05.D-M.1 Convert like measurement units within a given measurement system.

M05.D-M.1.1 Solve problems using simpleconversions (including multistep,real-world problems).	How do we solve problems using simple conversions (including multistep, real-world problems).

Concepts	Competencies	Resources	Assessments
M05.D-M.1.1.1 Convert between different-sized measurement units within a given measurement system. **A table of equivalencies will be provided.**	CC.2.4.5.A.1 Solve problems using conversions within a given measurement system.		

Vocabulary:			

M05.D-M Measurement and Data			
Big Idea **Represent and interpret data**			
M05.D-M.2.1 Organize, display, and answer questions based on data.		How do we organize, display, and answer questions based on data.	
Concepts	**Competencies**	**Resources**	**Assessments**
M05.D-M.2.1.1 Solve problems involving computation of fractions by using information presented in line plots. **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	CC.2.4.5.A.2 Represent and interpret data using appropriate scale. CC.2.4.5.A.4 Solve problems involving computation of fractions using information provided in a line plot.		

scale, and labels. A grid will be provided to display data on bar graphs or line graphs.			
Vocabulary:			

M05.D-M Measurement and Data			
Big Idea M05.D-M.3 Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.			
M05.D-M.3.1 Use, describe, and develop procedures to solve problems involving volume.		How do we use, describe, and develop procedures to solve problems involving volume.	
Concepts	**Competencies**	**Resources**	**Assessments**
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	CC.2.4.5.A.5 Apply concepts of volume to solve problems and relate volume to multiplication and to addition.		

mathematical problems. **Formulas will be provided.** **M05.D-M.3.1.2** Find volumes of solid figures composed of two non-overlapping right rectangular prisms.			
Vocabulary:			