Grade 5 Key Concepts by LearnZillion Unit

Key Concepts for each unit can provide instructional guidance around the main focus for student learning and the depth of exploration and mastery toward a standard. The final focus for each standard is indicated with black outline. A + indicates the focus of this standard is isolated to a single unit.

Standards for Math Practice(MP.#) have been listed for each Key Concept. While the curriculum highlights opportunities to elevate these in learning, it is essential that these standards be embedded into student learning when they occur regardless of the few called out in this document. For more information on the Standards for Math Practice, please visit: Illustrative Math

A few questions teams have asked while using this document:

- Where does the standard occur before it is finalized?
- To what depth is the current unit calling for? (range of numbers, strategies, use of abstraction like equations, concept awareness and flexibility, etc.)
- What "I can" or "I know" statements would make the Key Concepts clear to my learning community?
- How does the standard progress over the year?

Key Concepts (Term 1)	Content Standards	Practice Standards
Unit 1 - Understanding volume		
1. Volume is an attribute of solid figures, and is a measure of space inside the solid figure.	5.MD.C.3+	MP.3, MP.7
2. 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.	5.MD.C.3.a+	MP.3, MP.5
3. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.	5.MD.C.3.a+, 5.MD.C.3.b+, 5.MD.C.4+	MP.3, MP.6, MP.7
Unit 2 - Developing multiplication and division strategies		
1. The standard algorithm for multiplication is an efficient way to multiply that uses place value concepts.	5.NBT.B.5	MP.8
2. The standard algorithm for multiplying works whether the multiplication situation is iterating groups or as comparison.	5.NBT.B.5	MP.1, MP.8
3. We can relate the dividend, divisor, and quotient in a division problem to parts of an array model.	5.NBT.B.5, 5.NBT.B.6	MP.1, MP.6, MP.8
4. We can relate the dividend, divisor, and quotient in a division problem to parts of an area model.	5.NBT.B.6	MP.1, MP.8
5. We can use strategies based on place value, operations, and the relationship between multiplication and division.	5.NBT.B.5, 5.NBT.B.6	MP.1, MP.8
Unit 3 - Using equivalency to add and subtract fractions with unlike denominators		
1. If a/b = an/bn and c/d =cm/dm, then a/b+c/d = an/bn +cm/dm. This is why rewriting fractions as equivalent fractions produces the same sum.	5.NF.A.1+, 5.NF.A.2+	MP.4, MP.5
2. We can use the magnitude of fractions to be added or subtracted to estimate the sum or difference as less than or greater than some whole number, or to tell what two whole numbers the result should fall between.	5.NF.A.1+, 5.NF.A.2+	MP.2, MP.4
3. Naming the sum or difference of two fractions as one number requires rewriting the fractions with same size pieces.	5.NF.A.1+, 5.NF.A.2+	MP.2, MP.3, MP.4

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Unit 4 - Expanding understanding of place value to decimals		
1. In numbers, digits represent 1/10 of what they represent in the place to the left.	5.NBT.A.1+, 5.NBT.A.2+, 5.NBT.A.3+, 5.NBT.A.3a+	MP.4, MP.6, MP.7
2. When the place value extends to thousandths, the structure does not change.	5.NBT.A.3+, 5.NBT.A.3a+	MP.2, MP.7
3. Multiplying a number by 10 shifts the position of its digits one place to the left, and dividing a number by 10 shifts the position of its digits one place to the right.	5.NBT.A.2+	MP.1, MP.6, MP.7
Unit 5 - Understanding the concept of multiplying fractions by fractions		
1. Fractions can be interpreted as the division of the numerator by the denominator; if the numerator is divided by the denominator, the quotient is located at the same place on the number line as the original fraction.	5.NF.B.3+	MP.4, MP.8
2. We can interpret (a/b) x q as "a" parts of a partition of q into b equal parts, or a x q / b.	5.NF.B.4a+	MP.1, MP.4, MP.7
3. The area of a figure is invariant, regardless of the method used to find it.	5.NF.B.4.b+	MP.2, MP.4, MP.6
Unit 6 - Comparing and rounding decimals		
1. Numbers represented as decimals can be compared in the same way as fractions and whole numbers.	5.NBT.A.3.b+	MP.6, MP.7
2. Decimals with different numbers of digits to the right of the decimal point can be compared.	5.NBT.A.3.b+	MP.6, MP.7
3. Decimals can be rounded just as whole numbers can.	5.NBT.A.4+	MP.6, MP.7
Unit 7 - Interpreting multiplying fractions as scaling		
1. Additive (or absolute) comparisons show "n more than" or "n less than" and multiplicative (or relative) comparisons show "n times as many" or "n times as large".	5.NBT.B.5, 5.NF.B.5.a, 5.NF.B.5.b, 5.NF.6	MP.2, MP.4, MP.6
2. Scaling does not always make numbers larger.	5.NBT.5, 5.NF.B.5.a, 5.NF.B.5.b, 5.NF.6	MP.2, MP.4, MP.6
3. Multiplying both fraction components by the same number preserves the relationship between them. This is the same result as multiplying by 1	5.NBT.5, 5.NF.B.5.a, 5.NF.B.5.b, 5.NF.6	MP.2, MP.4, MP.6
4. Scaling with positive, non-whole number has the same meaning as scaling with whole numbers	5.NBT.5, 5.NF.B.5.a, 5.NF.B.5.b, 5.NF.6	MP.2, MP.4, MP.6
Standards in Progress...	**Standards Finalized (in Maintenance)**	**Standards Not Yet Taught**
5.NBT.B.5, 5.NBT.B.6 - Exploring connections between place value strategies and the standard algorithm of multiplication. Leveraging strategies involving place value and illustrations to begin to explain dividing 4-digit by 2-digit. No decimals yet. 5.NF.B.5.a, 5.NF.B.5.b, 5.NF.B.6 - Understand multiplication as scaling by using “x time as many” and explain the resulting product of a whole number times a fraction in various situations. Begin to solve problems with multiplication of fractions and whole numbers using visual fraction models.	5.NBT.A.3 5.NBT.A.3.a 5.NBT.A.3.b 5.NBT.A.4 5.NF.A.1 5.NF.A.2 5.NF.B.4.a 5.NF.B.4.b 5.MD.C.3 5.MD.C.3.a 5.MD.C.3.b 5.MD.C.4	5.OA.A.1 5.OA.A.2 5.OA.B.3 5.NBT.A.1 5.NBT.A.2 5.NBT.B.7 5.NF.B.3 5.NBT.B.7 5.MD.A.1 5.MD.B.2 5.MD.C.5 5.G.A.1 5.G.A.2 5.G.B.3 5.G.B.4

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Key Concepts (Term 2)	Content Standards	Practices Standards
Unit 8 - Developing the concept of dividing unit fractions		
1. The meaning of division does not change when the dividend is a fraction.	5.NBT.B.7, 5.NF.B.7.a, 5.NF.B.7.b	MP.1, MP.3
2. The relationship between multiplication and division holds for situations in which the divisor is a unit fraction; if ab=c, then c/b must be a.	5.NBT.B.7, 5.NF.B.7.b	MP.2, MP.5, MP.6
3. The relationship between multiplication and division does not change when working with fractions.	5.NF.B.7.a, 5.NF.B.7.b	MP.1, MP.7
Unit 9 - Solving problems involving volume		
1. The volume of a right rectangular prism is equal to the product of its length, width, and height, which is equal to the number of unit cubes that can be packed into it.	5.MD.C.5.a+, 5.MD.C.5.b+	MP.5, MP.6, MP.7, MP.8
2. The volume of a right rectangular prism is also equal to the product of its height and the area of its base.	5.MD.C.5.b+, 5.MD.C.5.c+	MP.5, MP.6, MP.7, MP.8
3. Volume is additive, meaning the volumes of non-overlapping parts of a solid figure can be summed to find the volume of the entire figure.	5.MD.C.5.c+	MP.6, MP.7
Unit 10 - Performing operations with decimals		
1. The meanings of addition and subtraction are the same when used with decimals as when used with whole numbers.	5.NBT.B.7	MP.2, MP.4, MP.7
2. The meaning of multiplication is the same when used with decimals as whole numbers.	5.NBT.B.7	MP.1, MP.2, MP.3, MP.4, MP.7
3. The meaning of division is the same when used with decimals as whole numbers.	5.NBT.B.7	MP.2, MP.7
4. Since the attribute length is invariant, we can measure it in different units, and we can convert between those units using multiplication and division (by powers of ten, in the case of the metric system).	5.MD.A.1+	MP.2, MP.6
Unit 11 - Classifying two-dimensional geometric figures		
1. Objects have geometric properties that allow us to create categories of objects.	5.G.B.3+, 5.G.B.4+	MP.7
2. Attributes belonging to a category of two-dimensional shapes also belong to all subcategories of that category.	5.G.B.3+, 5.G.B.4+	MP.7
3. Because figures may belong to categories and subcategories, we can classify figures in a hierarchy based on properties.	5.G.B.3+, 5.G.B.4+	MP.3, MP.7
Unit 12 - Solving problems with fractional quantities		
1. We can extend use our understanding of division to solve real-world partitive division problems involving fractional quantities.	5.NF.B.7.b, 5.NF.B.7c	MP.7

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2. We can understand that the meaning of measurement division problems is the same regardless of numbers used.	5.NF.B.5, 5.NF.B.6+, 5.NF.B.7, 5.NF.B.7.c+	MP.3, MP.7
3. We can use division to answer questions about a data set.	5.MD.B.2+	MP.2
Unit 13 - Representing algebraic thinking		
1. A numerical expression represents both a "recipe" for calculating and a statement about numerical values.	5.OA.A.1+, 5.OA.A.2+	MP.1, MP.2, MP.6
2. The goal of writing numerical expressions is not always to compute an "answer".	5.OA.A.2+	MP.2, MP.7
3. We can use grouping symbols to represent different mathematical situations; these sometimes change the value of expressions and sometimes do not.	5.OA.A.1+, 5.OA.A.2+	MP.2, MP.6
Unit 14 - Exploring the coordinate plane		
1. If we use two rules to create two patterns, we can identify relationships between corresponding terms and explain why those relationships exist.	5.OA.B.3+	MP.2, MP.4, MP.7
2. We can use perpendicular number lines called the x-axis and the y-axis, coinciding at 0, to create a coordinate plane, and locate points on the plane by identifying the x-coordinate and y-coordinate.	5.OA.B.3+, 5.G.A.1+	MP.6
3. We can represent problems and situations on the coordinate plane, and interpret coordinate values of points in the context of the situation.	5.G.A.2+	MP.2, MP.4, MP.6
(optional) Unit 15 - Finalizing multiplication and division with whole numbers		
1. The standard algorithm for multiplication is an efficient way to multiply that uses the distributive property and place value concepts.	5.NBT.B.5	MP.8
2. We can use our knowledge of place value to assess the reasonableness of the result of a calculation.	5.NBT.B.5	MP.8
3. The meaning of division is the same regardless of the strategy being used.	5.NBT.B.6	MP1., MP.2, MP.3, MP.7

* 5.NBT.B.5 - Multi-digit Multiplication: Focus on leveraging place value and strategy for efficiency and flexibility is key for this standard. The standard algorithm is one strategy to understand by the end of Grade 5. Keep in mind, mastery of the traditional standard algorithm for long division is required at the end of 6th grade.

KEY:

Color by Domain	NF	OA	CC	GEO	NBT	MD