Grade 5 Math Curriculum Guide

In Grade 5, instructional time should focus on three critical areas:

- Developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions)
- Extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations
- Developing understanding of volume.

Eugene School District 4J Elementary math curriculum is comprised of LearnZillion with Number Talks and selected math games integrated. The following document contains pacing and usage guidance for these three components.

Overall pacing guidance is given by month to ensure teachers have flexibility to use the information about the major ( ), supporting ( )and additional ( ) work for your grade-level and professional judgment when meeting the needs of students. It is most important to ensure students have opportunities to master grade-level content standards rather than teaching each lesson. Student unit workbooks are color coded to convey the primary domain of their learning.

Instructional Days	172.5	Lessons Available	163
Term 1	88	Units 0, 13, 1-6	83*
Term 2	84.5	Units 7- 9, 15, 10, 12, 11, 14	80

* include Unit 0 available lessons

Color Key by Domain	NF	OA	CC	GEO	NBT	MD

Unit-at-a-Glance pages are available for each unit at Eugene4J.LearnZillion.com. These pages detail prior knowledge, common misconceptions, differentiation/game resources, Number Talk recommendations, and more. Unit Planners indicate important vocabulary, materials to prep/gather, possible formative checkpoints, and expected representations/strategies.

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. Key Concepts are taught through a sets of lessons based on the 3 aspects of rigor: Conceptual, Fluency/Procedure, and Application. The final focused opportunity for each standard is noted with black outline. A standard that is isolated to a single unit is indicated with +.

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Standards for Math Practice (MP#) have been listed for each unit. 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

Number Talk Guidance: Number Talks are an essential instructional routine provided to support development of mental math fluency and strategic number sense. This important routine should be incorporated outside of the 60-minute math block on a regular basis. A variety of Number Talks have been recommended for use at the start of school, fall, winter and spring. Use your professional judgment along with the collaborative efforts of building staff and Staff Development Specialists when meeting the needs of students.

Game Resource Guidance: It is critical to note that fluency requires a balance of conceptual understanding and computational procedures. Well-posed and engaging math games afford students excellent opportunities to develop this understanding**.** These games have been identified in Investigations and other resources and provided by unit to reinforce prior knowledge concepts or enhance the key concepts of a unit. Guidance is provided for when and how to integrate these games, however, use your professional judgment when meeting the needs of students.

A few questions teams have asked while using this document:

- What are the concepts covered term 1 vs term 2? How does the standard progress over the year? Where does the standard occur before it is finalized?
- Knowing all standards must be learned and the majority of the year (~80%) should be spent on major work ( ), where can we compact, not skip, if needed?
- What is the focus of the unit? What is the primary domain? Is it major ( ), supporting ( ), or additional ( )work?
- How will strategies for fluency (efficiency, accuracy, flexibly) be built through games and Number Talks over the year?
- What are the Key Concepts students should master in this unit? To what depth is the current unit calling for? (range of numbers, strategies, use of abstraction like equations, concept awareness and flexibility, etc.)
- Within the unit, for each Key Concept, what do I want ALL of my students to know an be able to do?
- How can I use the set of lessons available for a Key Concept to support ALL of my students in this learning?
- What “I can” or “I know” statements would make the Key Concepts clear to my learning community?
- What evidence can I gather to show students have learned the Key Concept?
- Considering the Key Concept, how will I support students who need more support or are ready for more challenge? What games or Number Talks might support my learning community?
- How can I leverage and reinforce the Math Practices as students learn Key Concepts?

Reach out to your school’s Staff Development Specialist if clarification or support is needed.

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Reporting Period 1

Instructional Days: 88	**LearnZillion Units:** 0, 13, 1-6 (83 lessons available)

★	**Unit 0: Building a Mathematical Community in Grade 5 (Lessons: 6)** Ideas to compact: Unit 0's Lessons 3, 4 & 5 are intended to be combined with Unit 1's Lessons 1, 2, & 3	
	Lesson & Standards	Key Concepts
September	**Unit 13 - Representing algebraic thinking**	
	Lessons: 11 (10+assessment) 5.OA.A.1 [redacted] MP2, MP6, MP7	1. A numerical expression represents both a "recipe" for calculating and a statement about numerical values.
		2. The goal of writing numerical expressions is not always to compute an "answer".
		3. We can use grouping symbols to represent different mathematical situations; these sometimes change the value of expressions and sometimes do not.
October	**Unit 1 - Understanding volume**	
	Lessons: 7 (6+assessment) [redacted] [redacted] [redacted] [redacted] MP3, MP5, MP7, MP8	1. Volume is an attribute of solid figures, and is a measure of space inside the solid figure.
		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.
		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.
October	**Unit 2 - Developing multiplication and division strategies**	
	Lessons: 16 (15+assessment) 5.NBT.B.5 5.NBT.B.6 MP1, MP6, MP8	1. The standard algorithm for multiplication is an efficient way to multiply that uses place value concepts.
		2. The standard algorithm for multiplying works whether the multiplication situation is iterating groups or as comparison.
		3. We can relate the dividend, divisor, and quotient in a division problem to parts of an array model.
		4. We can relate the dividend, divisor, and quotient in a division problem to parts of an area model.
		5. We can use strategies based on place value, operations, and the relationship between multiplication and division.
November	**Unit 3 - Using equivalency to add and subtract fractions with unlike denominators**	
	Lessons: 11 (10+assessment) [redacted] [redacted] MP2, MP3, MP4, MP5	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.

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		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.
		3. Naming the sum or difference of two fractions as one number requires rewriting the fractions with same size pieces.
December	**Unit 4 - Expanding understanding of place value to decimals**	
	Lessons: 11 (10+assessment) 5.NBT.A.1+ 5.NBT.A.2+ 5.NBT.A.3+ 5.NBT.A.3.a+ MP1, MP2, MP4, MP6, MP7	1. In numbers, digits represent 1/10 of what they represent in the place to the left.
		2. When the place value extends to thousandths, the structure does not change.
		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.
End of Dec. - January	**Unit 5 - Understanding the concept of multiplying fractions by fractions**	
	Lessons: 10 (9+assessment) 5.NF.B.3+ 5.NF.B.4.a+ 5.NF.B.4.b+ MP1 , MP4, MP6, MP7, MP8	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.
		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.
		3. The area of a figure is invariant, regardless of the method used to find it.
January	**Unit 6 - Comparing and rounding decimals**	
	Lessons: 11 (10+assessment) 5.NBT.A.3b+ 5.NBT.A.4+ MP6 , MP7	1. Numbers represented as decimals can be compared in the same way as fractions and whole numbers.
		2. Decimals with different numbers of digits to the right of the decimal point can be compared.
		3. Decimals can be rounded just as whole numbers can.

Standards in Progress...	**Standards Finalized** **(moved to in Maintenance)**	**Standards Not Yet Taught**
5.OA.A.1 - Uses parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols (no evaluation of expressions with decimals or exponents yet). **5.NBT.B.5** - Explores connections between place value strategies and the standard algorithm of multiplication. **5.NBT.B.6 -** Leverages strategies involving place value and illustrations such as array or area models to begin to explain dividing 4-digit by 2-digit. No decimals yet.	5.OA.A.2 5.NBT.A.1/2/3/4 5.NBT.A.3.a & b 5.NF.A.1/2/3 5.NF.B.4.a & b 5.MD.C.3/4 5.MD.C.3.a & b	5.OA.A.3 5.NBT.B.7 5.NF.B.5.a & b 5.NF.B.6/7 5.MD.A.1 5.MD.B.2 5.MD.C.5 5.G.A.1/2 5.G.B.3/4

Reporting Period 2

Instructional Days: 84.5	**LearnZillion Units:** 7-9, 15, 10, 12, 11, 14 (80 lessons available)

February	**Unit 7 - Interpreting multiplying fractions as scaling**	
	Lessons: 11 (10+assessment) 5.NBT.B.5 5.NF.B.5.a 5.NF.B.5.b 5.NF.B.6 MP2, MP4, MP6	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".
		2. Scaling does not always make numbers larger.
		3. Multiplying both fraction components by the same number preserves the relationship between them. This is the same result as multiplying by 1
		4. Scaling with positive, non-whole number has the same meaning as scaling with whole numbers
End of Feb. - March	**Unit 8 - Developing the concept of dividing unit fractions**	
	Lessons: 8 (7+assessment) 5.NBT.B.7 [redacted] 5.NF.B.7.b MP1 , MP2, MP3, MP5, MP6, MP7	1. The meaning of division does not change when the dividend is a fraction.
		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.
		3. The relationship between multiplication and division does not change when working with fractions.
March	**Unit 9 - Solving problems involving volume**	
	Lessons: 11 (10+assessment) [redacted] [redacted] [redacted] [redacted] MP1, MP5, MP7, MP8	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.
		2. The volume of a right rectangular prism is also equal to the product of its height and the area of its base.
		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.
April	**Unit 15 - Finalizing multiplication and division with whole numbers**	
	Lessons: 11 (10+assessment) [redacted] [redacted] MP3 , MP8	1. The standard algorithm for multiplication is an efficient way to multiply that uses the distributive property and place value concepts.
		2. We can use our knowledge of place value to assess the reasonableness of the result of a calculation.
		3. The meaning of division is the same regardless of the strategy being used.

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April	**Unit 10 - Performing operations with decimals**	
	Lessons: 11 (10+assessment) 5.NBT.B.7 5.MD.A.1+ MP1 , MP2, MP3, MP4, MP6, MP7	1. The meanings of addition and subtraction are the same when used with decimals as when used with whole numbers.
		2. The meaning of multiplication is the same when used with decimals as whole numbers.
		3. The meaning of division is the same when used with decimals as whole numbers.
		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).
May	**Unit 12 - Solving problems with fractional quantities**	
	Lessons: 6 (5+assessment) 5.NF.B.7b 5.NF.B.7c 5.NF.B.6+ 5.NF.B.5 5.MD.B.2+ MP2 , MP3, MP7	1. We can extend use our understanding of division to solve real-world partitive division problems involving fractional quantities.
		2. We can understand that the meaning of measurement division problems is the same regardless of numbers used.
		3. We can use division to answer questions about a data set.
May	**Unit 11 - Classifying two-dimensional geometric figures** Ideas to compact:	
	Lessons: 11 (10+assessment) 5.G.B.3+ 5.G.B.4+ MP3, MP7	1. Objects have geometric properties that allow us to create categories of objects.
		2. Attributes belonging to a category of two-dimensional shapes also belong to all subcategories of that category.
		3. Because figures may belong to categories and subcategories, we can classify figures in a hierarchy based on properties.
End of May - June	**Unit 14 - Exploring the coordinate plane** Ideas to compact:	
	Lessons: 11 (10+assessment) 5.OA.B.3+ 5.G.A.1+ 5.G.A.2+ MP2, MP4, MP6, MP7	1. If we use two rules to create two patterns, we can identify relationships between corresponding terms and explain why those relationships exist.
		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.
		3. We can represent problems and situations on the coordinate plane, and interpret coordinate values of points in the context of the situation.

NOTE 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*.

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Developing Math Fluency with Grade 5 Number Talks

Overview: Number Talks supports the development of students' procedural fluency from conceptual understanding. This instructional routine takes about 5-15 minutes. The routine structures classroom conversation around purposefully ordered computation problems that students solve mentally.

Recommended Number Talk Sets
Introduction (Establishing expectations for Number Talks)
Addition ● Friendly Numbers Subtraction ● Adding Up ● Removal ● Counting Back Multiplication ● Friendly Numbers
Fall
Addition ● Breaking Into Place Value ● Adding Up in Chunks Subtraction ● Place Value and Negative Numbers Multiplication ● Partial Products ● Doubling and Halving
Winter
Addition ● Compensation Subtraction ● Adjusting One Number to Create an Easier Problem Multiplication ● Breaking Factors into Smaller Factors Division ● Partial Quotients
Spring
Subtraction ● Constant Difference Division ● Multiplying Up ● Proportional Reasoning

Common Tools:
- Dots or Drawings
- Open Number line
- Hundreds Chart
- Place Value Charts
- Cubes, Tiles, Counters
- Base Ten
- Array or Area Models
- Groupings
- Real-life Context

General Prompts:
- I agree with _____ because _____.
- I do not understand _____. Can you explain this again?
- I disagree with _____ because _____.
- How did you decide to _____?

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Practicing Math Fluency with Grade 5 Games

Purpose: Games provide additional practice to develop fluencies and opportunity to encourage a positive relationship with mathematics and peers. While teachers have identified 2-4 games per unit to support Operations and Algebraic Thinking, other game resources have been included in a Grade-level Games Binder. Teachers are encouraged to enhance standards with other materials or activities at their discretion. Game structures such as partners, small group, or differentiated review rely on a solid foundation of positive mathematical mindsets and clear community expectations. Unit 0 provides many instructional strategies to enhance such an environment.

Unit	Games in LZ	Supplemental Game	Source	Standard(s) for Supplemental Games
Unit 1		Multiplication Compare Finding Factors Missing Addend or Factor (Salute)	Investigations Other Resource Other Resource	5.NBT - 2, 5 5.OA.B, 5.NBT.B 5.OA.B
Unit 2		Hit the Target Target 300 (A Multiplication Game) Pathways and Variation: Ten Times Division Compare Leftovers with 15 (and 100)	Other Resource Other Resource Other Resource Investigations Other Resource	5.OA.B, 5.NBT.B 5.OA.A, 5.NBT.A/B 5.OA.B, 5.NBT.A 5.NBT.B.6 5.OA.A, 5.NBT.B
Unit 3*		Wipeout (Fractional Relationships) Roll Around the Clock Spinning Sums and Differences	Other Resource Investigations Other Resource	5.NF.A/B 4.NF.A.1** 5.NBT.A. 5.NF.A/B
Unit 4	3-way Match!	Decimals in Between Smaller to Larger Digit Place (A Secret Number Game)	Investigations Investigations Other Resource	5.NBT.3ab 5.NBT.3ab 5.NBT.A
Unit 5*				
Unit 6		Decimals in Between Smaller to Larger	Investigations Investigations	5.NBT.3ab 5.NBT.3ab
Unit 7*				
Unit 8*				
Unit 9				

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Unit 10		Fill Two Close to 1 Decimal Double Compare Roll for $1.00 and Roll for 1	Investigations Investigations Investigations Other Resource	5.NBT.3a 5.NBT.7 5.NBT.3a 5.NBT.A/B, 5.NF.A
Unit 11				
Unit 12				
Unit 13	Hit the Target	Equation Building Order up 21! Roll for 6 to 100 Take Five, Make Ten!	Other Resource Other Resource Other Resource Other Resource	5.OA.A, 5.NBT.A/B, 5.NF.A/B 5.OA.A, 5.NBT.A/B, 5.NF.A/B 5.OA.A, 5.NBT.B 5.OA.A, 5.NBT.A/B
Unit 14*				
Unit 15*				

* No additional aligned games for this unit at this time. Please select from the Games Resources binder to support prior knowledge.

NOTE: Be aware that some of the games above (played as written) meet prior knowledge standard and not current grade content standards.