Grade 3 Math Curriculum Guide

In Grade 3, instructional time should focus on four critical areas:

- Developing understanding of multiplication and division and strategies for multiplication and division within 100
- Developing understanding of fractions, especially unit fractions (fractions with numerator 1)
- Developing understanding of the structure of rectangular arrays and of area
- Describing and analyzing two-dimensional shapes.

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 0-6	79*
Term 2	84.5	Units 7-14	87**

* include Unit 0 available lessons

** Unit 7 will begin in Term 1 & assessed in Term 2

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.

Updated 9/7/18

Reporting Period 1

Instructional Days: 88	**LearnZillion Units:** 0-6 (79 lessons available)

★ **Unit 0: Building a Mathematical Community in Grade 3 (Lessons: 6)**
Ideas to compact: Unit 0's Lessons 5 & 6 are intended to be combined with Unit 1's Lessons 1 & 2

	Lesson & Standards	Key Concepts
September	**Unit 1 - Exploring equal groups as a foundation for multiplication and division**	
	Lessons: 11 (10+assessment) 3.OA.A.1 3.OA.A.2 3.OA.A.3 3.OA.C.7 MP1, MP2, MP4, MP7	1. Products of whole numbers can be interpreted as a number of groups of a number of objects.
		2. Quotients of whole numbers can be interpreted as a number of shares (partitive or distribution division) and a number of groups (quotative or measurement division).
		3. We can use drawings and equations to represent and solve multiplication and division situational problems involving equal groups and arrays.
		4. We can use strategies such as the relationship between multiplication and division or properties of operations to multiply and divide.
October	**Unit 2 - Developing conceptual understanding of area**	
	Lessons: 11 (10+assessment) [redacted] [redacted] [redacted] [redacted] [redacted] 3.OA.B.5 MP1, MP2, MP4, MP6	1. Area is an attribute of plane figures describing how much two-dimensional space is covered by the figure.
		2. Square units or unit squares (that cover a figure without gaps) can be used to measure the area of a figure, which is said to be n square units.
		3. We can find the area of a rectangle (with whole number length sides) by tiling it with unit squares or by multiplying the side lengths.
End of Oct. - November	**Unit 3 - Developing strategies for addition and subtraction** Ideas to compact:	
	Lessons: 16 (15+assessment) [redacted] 3.NBT.A.2 3.MD.D.8 MP5, MP6, MP7, MP8	1. Rounding is based on place value, and may be used to gauge the reasonableness of calculations or may be used in place of a specific calculation.
		2. We can use place value understanding to add and subtract using a variety of strategies.
		3. Perimeter is the sum of lengths of the sides of a polygon.

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November	**Unit 4 - Understanding unit fractions**	
	Lessons: 11 (10+assessment) 3.G.A.2+ 3.NF.A.1+ 3.NF.A.2 3.NF.A.2.a+ 3.NF.A.2.b+ MP3, MP4, MP6, MP7	1. Fractions are numbers that describe a quantity that results from the partition of a whole.
		2. Just as whole numbers denote a collection of whole units, fractions denote a collection of unit fractions.
		3. When a whole is partitioned into b equal sized pieces, each piece is 1/b of the whole. It takes b of these pieces to make the whole. When we take a of those pieces, the result is a/b.
		4. Fractions live on the number line denoting a distance from 0, just as whole numbers do.
December	**Unit 5 - Using fractions in measurement and data**	
	Lessons: 14 (13+assessment) 3.MD.B.4 3.NF.A.2 MP2 , MP4, MP5, MP6	1. Measurements get more precise when we use parts of units. Length measurements can be partitioned into any size increments. (restricted to halves and quarters in grade 3)
		2. The quantitative measurement object is invariant (a toothpick's length does not change, regardless of how we align it to a ruler; the weight of a book doesn't change if we put another object on the scale with it).
		3. Measures can be reported to the nearest whole inch, half inch, or quarter inch.
January	**Unit 6 - Solving addition and subtraction problems involving measurement**	
	Lessons: 11 (10+assessment) 3.MD.A.1+ 3.MD.A.2 MP1, MP4, MP5	1. We can use representations such as a number line to solve situational problems involving addition and subtraction of time (in minutes).
		2. Representations and drawings can be used to solve one-step situational problems involving addition and subtraction of liquid volumes.
		3. Representations and drawings can be used to solve one-step situational problems involving addition and subtraction of mass.

Standards in Progress...	**Standards Finalized (moved to in Maintenance)**	**Standards Not Yet Taught**
3.OA.A.1, 3.OA.A.2, 3.OA.A.3 - Develops understanding of multiplication as "groups of" and division as both sharing and partitioning. Begin to use drawings and tools to show multiplication and division situations with equal groups and arrays. Interpretation of products and quotients or us of symbols for the unknown is not expected at this time. **3.OA.B.5 -** Begins to explore commutative property of multiplication (if 6x4=24 then 4x6=24) but other properties will be explored term 2. **3.OA.C.7 -** Begins to use known multiplication facts to solve division **3.NBT.A.2 -** Leverages place value understanding to add and subtract within 1000 **3.MD.A.2 -** Begins to use drawings to solve addition and subtraction only **3.MD.D.8 -** Understand the concept of perimeter but not necessary to relate area with perimeters	3.NBT.A.1 3.NF.A.1 3.NF.A.2 3.MD.A.1 3.MD.B.4 3.MD.C.5 3.MD.C.6 3.MD.C.7.a 3.G.A.2	3.OA.A.4 3.OA.B.6 3.OA.D.8 3.OA.D.9 3.NBT.A.3 3.NF.A.3 3.MD.B.3 3.MD.C.7.bcd 3.G.A.1

Updated 9/7/18

Reporting Period 2

Instructional Days: 84.5	**LearnZillion Units:** 7-14 (87 lessons available)

End of Jan. - February	**UNIT 7: Understanding the relationship between multiplication and division**	
	Lessons: 11 (10+assessment) 3.OA.A.1 3.OA.A.2 3.OA.A.3 3.OA.B.6 MP1, MP7	1. Quotients of whole numbers can be interpreted as a number of shares (partitive or distribution division) and a number of groups (quotative or measurement division).
		2. We can use drawings and equations to represent and solve multiplication and division situational problems involving equal groups, arrays, and measurement quantities.
		3. We can use the inverse relationship between multiplication and division and properties of the operations can be applied to multiply within 100.
February	**UNIT 8: Investigating patterns in numbers and operations**	
	Lessons: 11 (10+assessment) 3.NBT.A.3 3.OA.D.8 3.OA.D.9 3.MD.B.3 MP3, MP7	1. We can use our understanding of place value to multiply multiples of 10.
		2. We can find patterns in the number system and explain them using properties of operations.
		3. Picture graphs and bar graphs can have scales other than 1.
March	**UNIT 9: Developing strategies for multiplication and division**	
	Lessons: 11 (10+assessment) 3.OA.B.5 3.MD.C.7.c+ 3.MD.C.7.d+ MP5, MP7, MP8	1. A given set of factors has the same product, regardless of the order in which the factors are written.
		2. The area of a rectangle with whole-number side lengths a and b + c is the sum of a x b and a x c.
		3. We can decompose rectilinear figures because area is additive.
End of Mar. - April	**UNIT 10: Understanding equivalent fractions**	
	Lessons: 11 (10+assessment) 3.NF.A.3.a+ 3.NF.A.3.b+ 3.NF.A.3.c+ MP4, MP6	1. Equivalent fractions have the same value. They name the same amount of area of the same whole and are in the same position on the number line.
		2. Whole numbers can be named as fractions, and naming whole numbers as fractions does not change their value.
		3. We can name quantities in infinitely many ways.
April	**UNIT 11: Comparing fractions**	
	Lessons: 10 (9+assessment) 3.NF.A.3.d+ MP3, MP4, MP5, MP6, MP8	1. There are three possible relationships between two numbers a and b that are based on the same whole: a<b, a>b, or a=b
		2. Fractions based on the same whole with the same numerator, but different denominators, have the same number of pieces, but the size of the pieces is different.

		3. Fractions based on the same whole with the same denominator, but different numerators, have pieces that are the same size, but the number of the pieces is different.
End of Apr. - May	**UNIT 12: Solving problems involving area**	
	Lessons: 11 (10+assessment) 3.OA.A.3 [redacted] [redacted] [redacted] MP2, MP6, MP8	1. We can use the relationship between the three whole numbers in a multiplication and division equation to identify a missing number that makes the equation true.
		2. We can use the properties of multiplication and the relationship between multiplication and division to solve equations with an unknown.
		3. Area relates to multiplication and addition and that knowledge can be used to solve real world problems involving area.
May	**UNIT 13: Solving problems involving shapes** Ideas to compact:	
	Lessons: 11 (10+assessment) [redacted] [redacted] MP1, MP3, MP4, MP7	1. Perimeter is a linear attribute of plane figures telling the distance around the figure, and can be distinguished from area.
		2. Shapes in different categories (rhombuses, rectangles, etc.) may share attributes.
		3. All rhombuses, rectangles and squares are examples of quadrilaterals, but not all quadrilaterals fit in those subcategories.
End of May - June	**UNIT 14: Using multiplication and division to solve measurement problems**	
	Lessons: 11 (10+assessment) [redacted] [redacted] MP1, MP2, MP3, MP4, MP5, MP7	1. We can use multiplication to solve problems involving equal groups measurement quantities (including liquid volumes and masses of objects).
		2. We can use division to solve problems involving equal groups measurement quantities (including liquid volumes and masses of objects).
		3. The relationship between multiplication and division sometimes enables us to choose which operation to use; not all problems are either "multiplication problems" or "division problems".
optional	**UNIT 15 (optional): Demonstrating computational fluency in problem solving** Optional Focus Lessons:	
	Lessons: 11 (10+assessment) [redacted] [redacted] [redacted] MP2, MP8	1. We can use the relationship between addition and subtraction to add and subtraction within 1000.
		2. We can use the relationship between multiplication and division to multiply and divide within 1000.
		3. We can represent unknown quantities in equations using letters.

NOTE 3.OA.C.7 - Single-digit products and quotients (Products from memory by end of Grade 3): Fluency is built all year within lessons, during Number Talks and through game play. Since mental math (or memory) is the goal, students should be encouraged to use strategies like relating x2 to x4 and x8, x10 as double x5 or x5 as half of x10, x3 as x2 plus one more set, x9 as one less set than x10, etc.
NOTE 3.NBT.A.2 - Add/subtract within 1000: Focus on leveraging place value and strategy for efficiency and flexibility for both addition and subtraction is key for this standard. Keep in mind, mastery of the traditional standard algorithm for addition and subtraction is required at the end of 4th grade.

Developing Math Fluency with Grade 3 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)
Grade 2 - Addition • Doubles/Near Doubles • Making Tens
Fall
Addition • Friendly Numbers • Breaking into Place Value • Adding Up in Chunks Subtraction • Adding Up • Removal
Winter
Addition • Compensation Subtraction • Counting Back • Place Value and Negative Numbers Multiplication • Friendly Numbers • Partial Products
Spring
Subtraction • Adjusting One Number to Create an Easier Problem • Constant Difference Multiplication • Doubling and Halving • Breaking Factors into Smaller Factors Division • Partial Quotients • Multiplying Up

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 _____?

Practicing Math Fluency with Grade 3 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		Factor Pairs Missing Factors Count and Compare Multiplication Trail Circle and Stars Target 300 Leftovers with 15	Investigations Investigations Investigations Other Resource Other Resource Other Resource Other Resource	3.OA - 5, 7, 3.MD - 6, 7b 3.OA - 1, 7, 3.MD - 6, 7b 3.OA - 1, 5, 7, 3.MD - 6, 7b 3.OA.C, 3.NBT.A 3.OA.A/B, 3.NBT.A 3.OA.A/B 3.OA.A/B
Unit 2		Factor Pairs Missing Factors Count and Compare Finding Factors Missing Factors Pathways Products Pathways: Ten Times	Investigations Investigations Investigations Other Resource Other Resource Other Resource Other Resource	3.OA - 5, 7, 3.MD - 6, 7b 3.OA - 1, 7, 3.MD - 6, 7b 3.OA - 1, 5, 7, 3.MD - 6, 7b 3.OA.A 3.OA.B, 3.NBT.A 3.OA.A/B, 3.NBT.A 3.OA.A/B, 3.NBT.A
Unit 3*	Perimeter Game	How Far from 100? Let's Go Collecting A"Mazing" 100 Addition Table Trail Addition Tic-Tac-Toe Close to 100 (or 1000) Roll 6 for 100	Investigations Investigations Other Resource Other Resource Other Resource Other Resource Other Resource	3.NBT - 1, 2 3.NBT. 2 3.NBT.A 3.OA.C 3.NBT.A 3.NBT.C, 3.NBT.A 3.OA.B, 3.NBT.A
Unit 4	Fraction Match Complete the Whole!	Factor Pairs Fraction Cookies Wipeout	Investigations Investigations Other Resource	3.OA - 5, 7, 3.MD - 6, 7b 3.NF - 1, 3abc
Unit 5*		Factor Pairs Fraction Cookies	Investigations Investigations	3.OA - 5, 7, 3.MD - 6, 7b 3.NF - 1, 3abc
Unit 6				
Unit 7*	Multiplication and Division Match It	Factor Pairs Missing Factors	Investigations Investigations	3.OA - 5, 7, 3.MD - 6, 7b 3.OA - 1, 7, 3.MD - 6, 7b

Updated 9/7/18

		How Far from 100?	Investigations	3.NBT - 1, 2
Unit 8*		Let's Go Collecting Close to 1000	Investigations Other Resource	3.NBT.2 3.NBT - 1, 2
Unit 9	Factor Switch Color the Area	Factor Pairs Missing Factors Count and Compare	Investigations Investigations Investigations	3.OA - 5, 7, 3.MD - 6, 7b 3.OA - 1, 7, 3.MD - 6, 7b 3.OA - 1, 5, 7, 3.MD - 6, 7b
Unit 10	Spin to Win! Equivalent Fraction Sort	Factor Pairs Fraction Cookies	Investigations Investigations	3.OA - 5, 7, 3.MD - 6, 7b 3.NF - 1, 3abc
Unit 11		Factor Pairs Fraction Cookies	Investigations Investigations	3.OA - 5, 7, 3.MD - 6, 7b 3.NF - 1, 3abc
Unit 12		Factor Pairs Missing Factors	Investigations Investigations	3.OA - 5, 7, 3.MD - 6, 7b 3.OA - 1, 7, 3.MD - 6, 7b
Unit 13	Polygon Dominos	Fraction Cookies What's My Shape	Investigations Investigations	3.NF - 1, 3abc 3.G - 1, 2
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.