Louisiana Guide to Illustrative Mathematics

Grade 4

To assist teachers with the implementation of the Illustrative Mathematics curriculum for Grade 4, this document provides multiple layers of guidance regarding how Illustrative Mathematics lessons correlate with the Louisiana Student Standards for Mathematics (LSSM). Illustrative Mathematics is a focused, coherent math curriculum that provides ample instructional guidance for teachers. This Louisiana Guide to Implementing Illustrative Mathematics goes a step further to point out places in which teachers may need to make strategic decisions considering student needs and time availability by offering a suggested pacing calendar, highlighting the prerequisite standards and grade level standards by unit, detailing standards by lesson, and showcasing the alignment to the Louisiana Student Standards for Mathematics.

The guidance document is considered a “living” document. We believe that educators will find ways to make improvements to the guidance document as they use it. Please send feedback to STEM@la.gov.

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Grade 4 Suggested Implementation Calendar

Grade 4	Unit	Approximate Number of Days*	Number of Lessons
Weeks 1-2	Unit 1: Factors and Multiples	8-10 Days	8 (includes 2 optional lessons)
Weeks 3-6	Unit 2: Fraction Equivalence and Comparison	18-19 Days	17 (includes 1 optional lesson)
Weeks 7-10	Unit 3: Extending Operations to Fractions	20-22 Days	20 (includes 2 optional lessons)
Weeks 11-15	Unit 4: From Hundredths to Hundred-thousands	24-25 Days	23 (includes 1 optional lesson)
Weeks 16-19	Unit 5: Multiplicative Comparison and Measurement	19-20 Days	18 (includes 1 optional lesson)
Weeks 20-24	Unit 6: Multiplying and Dividing Multi-Digit Numbers	26-27 Days	25 (includes 1 optional lesson)
Weeks 25-28	Unit 7: Angles and Angle Measurement	17-18 Days	16 (includes 1 optional lesson)
Weeks 29-31	Unit 8: Properties of Two-Dimensional Shapes	9-12 Days	10 (includes 3 optional lessons)
Weeks 32-34	Unit 9: Putting It All Together	14 Days	12

Alignment to Louisiana Student Standards for Mathematics

Focus in the Standards

Not all content at given grades is emphasized equally in the standards. Some clusters require greater emphasis than others based on the depth of ideas, the time that they take to master, and/or their importance to future mathematics or the demands of college and career readiness. More time in these areas is also necessary for students to meet the Louisiana Standards for Mathematical Practices. To say that some things have greater emphasis is not to say that anything in the standards can safely be neglected in instruction. Neglecting material will leave gaps in student skill and understanding and may leave students unprepared for the challenges of a later grade. Students should spend the large majority of their time on the major work on the grade (■). Supporting work (◘) and, where appropriate, additional work (○) can engage students in the major work of the grade.

Grade 4: Standards by Unit								
Unit 1	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**	**Unit 6**	**Unit 7**	**Unit 8**	**Unit 9**
4.OA.A.3 4.OA.B.4 4.OA.B.4a 4.OA.B.4b 4.OA.B.4c 4.OA.B.4d 4.OA.C.5	4.NF.A.1 4.NF.A.2 4.NBT.B.4 4.NBT.B.5	4.NF.A.1 4.NF.A.2 4.NF.B.3 4.NF.B.3a 4.NF.B.3b 4.NF.B.3c 4.NF.B.3d 4.NF.B.4 4.NF.B.4a 4.NF.B.4b 4.NF.B.4c 4.NF.C.5 4.NBT.B.5 4.MD.B.4	4.NF.B.3c 4.NF.C.5 4.NF.C.6 4.NF.C.7 4.NBT.A.1 4.NBT.A.2 4.NBT.A.3 4.NBT.B.4	4.OA.A.1 4.OA.A.2 4.OA.A.3 4.NF.B.4c 4.NBT.B.5 4.MD.A.1 4.MD.A.2 4.MD.A.3	4.OA.A.3 4.NBT.B.4 4.NBT.B.5 4.NBT.B.6 4.MD.A.2 4.MD.A.3 4.OA.B.4 4.OA.C.5	4.NBT.B.4 4.NBT.B.5 4.NBT.B.6 4.MD.C.5 4.MD.C.5a 4.MD.C.5b 4.MD.C.6 4.MD.C.7 4.G.A.1 4.G.A.2	4.NF.B.3c 4.NF.B.4 4.NF.B.4b 4.NBT.B.5 4.MD.A.3 4.MD.C.7 4.G.A.1 4.G.A.2 4.G.A.3	4.OA.A.2 4.OA.A.3 4.NF.A.1 4.NF.A.2 4.NF.B.3 4.NF.B.3a 4.NF.B.3b 4.NF.B.3c 4.NF.B.3d 4.NF.B.4 4.NF.C.5 4.NF.C.6 4.NF.C.7 4.NBT.A.1 4.NBT.B.4 4.NBT.B.5 4.NBT.B.6 5.NF.A.1 4.OA.B.4 4.OA.C.5 4.G.A.1

Prerequisite Standards: 3.OA.B.5 3.MD.C.7	Prerequisite Standards: 3.NF.A.1 3.NF.A.2 3.NF.A.2a 3.NF.A.3 3.NF.A.3b 3.NF.A.3d 3.OA.B.5	Prerequisite Standards: 3.NF.A.1 3.MD.B.4 3.NBT.A.2		Prerequisite Standards: 2.MD.A.1 4.NF.B.3b 4.NF.B.4b	Prerequisite Standards: 3.OA.A.2 3.OA.A.3 3.MD.C.7 4.NBT.A.1	Prerequisite Standards: 4.NBT.A.1 4.NF.B.4b		

Standards by Lesson

Grade 4: Standards by Lesson	
Unit 1 Lessons	**Standards**
1	4.OA.B.4
2	4.OA.B.4
3	4.OA.B.4, 4.OA.C.5
4	4.OA.B.4
5	4.OA.A.3, 4.OA.B.4
6	4.OA.B.4
7	4.OA.B.4
8	4.OA.B.4
Unit 2 Lessons	**Standards**
1	4.NF.A.1

2	4.NF.A.1
3	4.NBT.B.4, 4.NF.A.2
4	4.NF.A.1
5	4.NF.A.1
6	4.NF.A.2
7	4.NF.A.1
8	4.NF.A.1
9	4.NBT.B.5, 4.NF.A.1
10	4.NF.A.1
11	4.NF.A.1
12	4.NF.A.2
13	4.NF.A.1, 4.NF.A.2
14	4.NBT.B.4, 4.NF.A.1, 4.NF.A.2
15	4.NF.A.1, 4.NF.A.2

16	4.NF.A.2
17	4.NF.A.1
Unit 3 Lessons	**Standards**
1	4.NF.B.4, 4.NF.B.4a
2	4.NBT.B.5, 4.NF.B.4, 4.NF.B.4a, 4.NF.B.4c
3	4.NF.B.4, 4.NF.B.4a
4	4.NF.B.4, 4.NF.B.4b
5	4.NF.B.4a, 4.NF.B.4b, 4.NF.B.4c
6	4.NF.B.4a, 4.NF.B.4b, 4.NF.B.4c
7	4.NF.B.3, 4.NF.B.3b
8	4.NF.B.3a, 4.NF.B.3b, 4.NF.B.3c
9	4.NF.B.3a, 4.NF.B.3c
10	4.NF.B.3c, 4.NF.B.3d, 4.NF.B.4c
11	4.NF.B.3c, 4.NF.B.3d

12	4.NF.B.3c, 4.NF.B.3d
13	4.NF.B.3d, 4.MD.B.4
14	4.NF.B.3c, 4.MD.B.4
15	4.NF.A.1, 4.NF.A.2, 4.NF.B.3d, 4.NF.C.5
16	4.NF.A.1, 4.NF.C.5
17	4.NF.C.5
18	4.NF.B.4c, 4.NF.C.5
19	4.NF.B.3c, 4.NF.B.3d, 4.NF.B.4, 4.NF.C.5
20	4.NF.B.3d, 4.NF.B.4
Unit 4 Lessons	**Standards**
1	4.NF.C.6
2	4.NF.C.5, 4.NF.C.6, 4.NF.C.7
3	4.NF.C.7
4	4.NF.C.7

5	4.NF.C.5, 4.NF.C.6, 4.NF.C.7
6	4.NBT.A.1
7	4.NBT.A.2
8	4.NBT.A.1, 4.NBT.A.2
9	4.NBT.A.1, 4.NBT.A.2
10	4.NBT.A.1, 4.NBT.A.2, 4.NBT.B.4
11	4.NBT.A.1, 4.NBT.A.2
12	4.NBT.A.2
13	4.NBT.A.2
14	4.NBT.A.2, 4.NBT.A.3
15	4.NBT.A.3
16	4.NBT.A.3
17	4.NBT.A.3
18	4.NBT.B.4

19	4.NBT.B.4, 4.NF.B.3c
20	4.NBT.B.4
21	4.NBT.A.2, 4.NBT.B.4
22	4.NBT.B.4
23	4.NBT.B.4
Unit 5 Lessons	**Standards**
1	4.OA.A.1, 4.OA.A.2
2	4.OA.A.1, 4.OA.A.2
3	4.OA.A.1, 4.OA.A.2
4	4.OA.A.1, 4.OA.A.2
5	4.OA.A.1, 4.OA.A.2, 4.OA.A.3
6	4.NBT.B.5, 4.OA.A.1, 4.OA.A.2
7	4.MD.A.1
8	4.MD.A.1, 4.MD.A.2

9	4.MD.A.1, 4.MD.A.2
10	4.OA.A.2, 4.OA.A.3, 4.MD.A.2
11	4.OA.A.3, 4.MD.A.1, 4.MD.A.2
12	4.OA.A.3, 4.MD.A.1, 4.MD.A.2
13	4.OA.A.3, 4.MD.A.2
14	4.OA.A.2, 4.MD.A.1, 4.MD.A.2
15	4.OA.A.2, 4.NF.B.4c, 4.MD.A.2
16	4.OA.A.2, 4.NF.B.4, 4.MD.A.3
17	4.OA.A.2, 4.MD.A.2, 4.MD.A.3
18	4.OA.A.2, 4.MD.A.1
Unit 6 Lessons	**Standards**
1	4.OA.C.5
2	4.OA.C.5
3	4.NBT.B.5, 4.OA.C.5

4	4.NBT.B.5, 4.OA.C.5
5	4.NBT.B.5
6	4.NBT.B.5
7	4.NBT.B.5
8	4.NBT.B.4, 4.NBT.B.5
9	4.NBT.B.5
10	4.NBT.B.5
11	4.NBT.B.5
12	4.NBT.B.5, 4.OA.A.3, 4.MD.A.2
13	4.NBT.B.6
14	4.NBT.B.6, 4.OA.A.3,
15	4.NBT.B.6, 4.OA.A.3, 4.MD.A.3
16	4.NBT.B.6
17	4.NBT.B.6

18	4.NBT.B.6, 4.OA.A.3
19	4.NBT.B.6, 4.OA.A.3, 4.OA.B.4
20	4.NBT.B.6, 4.OA.A.3
21	4.NBT.B.5, 4.NBT.B.6, 4.OA.A.3
22	4.NBT.B.5, 4.OA.A.3, 4.MD.A.2, 4.MD.A.3
23	4.NBT.B.4, 4.NBT.B.5, 4.NBT.B.6
24	4.NBT.B.4, 4.OA.A.2, 4.OA.A.3
25	4.OA.A.3, 4.OA.C.5
Unit 7 Lessons	**Standards**
1	4.G.A.1
2	4.NBT.B.4, 4.NBT.B.5, 4.G.A.1
3	4.G.A.1
4	4.G.A.1, 4.G.A.2
5	4.MD.C.5, 4.G.A.1

6	4.MD.C.5, 4.MD.C.5a, 4.G.A.1
7	4.MD.C.5, 4.MD.C.5a
8	4.MD.C.5, 4.MD.C.5a, 4.MD.C.6, 4.MD.C.7
9	4.NBT.B.5, 4.MD.C.5a, 4.MD.C.5b, 4.MD.C.6, 4.MD.C.7
10	4.NBT.B.6, 4.MD.C.5b, 4.MD.C.6, 4.G.A.1
11	4.MD.C.5a, 4.MD.C.6, 4.MD.C.7, 4.G.A.1
12	4.MD.C.7, 4.G.A.1
13	4.MD.C.7
14	4.MD.C.6, 4.MD.C.7
15	4.MD.C.7, 4.G.A.1
16	4.G.A.1, 4.G.A.2
Unit 8 Lessons	**Standards**
1	4.G.A.1, 4.G.A.2
2	4.NF.B.3c, 4.NF.B.4, 4.G.A.2

3	4.G.A.1, 4.G.A.2
4	4.G.A.2, 4.G.A.3
5	4.NBT.B.5, 4.G.A.1, 4.G.A.3
6	4.G.A.1, 4.G.A.2, 4.G.A.3
7	4.NF.B.3, 4.NF.B.3c, 4.NF.B.4, 4.NF.B.4b, 4.G.A.3
8	4.NF.B.3c, 4.NF.B.4, 4.G.A.3
9	4.MD.A.3, 4.G.A.1, 4.G.A.2, 4.G.A.3
10	4.MD.C.7, 4.G.A.3
Unit 9 Lessons	**Standards**
1	4.NF.B.3, 4.NF.B.4, 4.NF.C.5
2	4.NF.A.1, 4.NF.A.2, 4.NF.B.3a, 4.NF.B.3b, 4.NF.B.3c, 4.NF.B.3d, 5.NF.A.1
3	4.NF.B.3c, 4.NF.B.3d, 4.NF.C.5, 4.NF.C.6, 4.NF.C.7
4	4.NBT.B.4

5	4.NBT.B.5
6	4.NBT.B.6
7	4.OA.A.2, 4.OA.A.3, 4.NBT.B.5, 4.NBT.B.6
8	4.OA.A.3, 4.NBT.B.5, 4.NBT.B.6
9	4.OA.A.3, 4.NBT.B.4, 4.NBT.B.5, 4.NBT.B.6
10	4.OA.A.3
11	4.NBT.B.5, 4.OA.B.4, 4.OA.C.5, 4.G.A.1
12	4.NBT.A.1, 4.NF.B.4

Louisiana Alignment		
Standard Code	Standard Language	Aligned Lessons
4.OA.A.1	Interpret a multiplication equation as a comparison and represent verbal statements of multiplicative comparisons as multiplication equations, e.g., interpret 35 = 5 x 7 as a statement that 35 is 5 times as many as 7, and 7 times as many as 5.	5.2, 5.3, 5.4, 5.5, 5.6
4.OA.A.2	Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison (Example: 6 times as many vs. 6 more than).	5.2, 5.3, 5.4, 5.5, 5.6, 5.10, 5.14, 5.15, 5.16, 5.17, 5.18, 6.24, 9.7
4.OA.A.3	Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. *Example: Twenty-five people are going to the movies. Four people fit in each car. How many cars are needed to get all 25 people to the theater at the same time?*	1.5, 5.5, 5.10, 5.11, 5.12, 5.13, 6.12, 6.14, 6.15, 6.18, 6.19, 6.20, 6.21, 6.22, 6.24, 6.25, 9.7, 9.8, 9.9, 9.10
4.OA.B.4	Using whole numbers in the range 1–100.	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 6.19, 9.11
4.OA.B.4a	Find all factor pairs for a given whole number.	1.2, 1.3, 1.4, 1.6, 1.7, 1.8
4.OA.B.4b	Recognize that a given whole number is a multiple of each of its factors.	1.1, 1.3, 1.5, 1.6, 1.7

4.OA.B.4c	Determine whether a given whole number is a multiple of a given one-digit number.	1.1, 1.3, 1.7
4.OA.B.4d	Determine whether a given whole number is prime or composite.	1.3, 1.6, 1.8
4.OA.C.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way*.	1.3, 6.1, 6.2, 6.3, 6.4, 6.25, 9.11
4.NBT.A.1	Recognize that in a multi-digit whole number less than or equal to 1,000,000, a digit in one place represents ten times what it represents in the place to its right. *Examples: (1) recognize that 700 ÷ 70 = 10; (2) in the number 7,246, the 2 represents 200, but in the number 7,426 the 2 represents 20, recognizing that 200 is ten times as large as 20, by applying concepts of place value and division.*	4.6, 4.8, 4.9, 4.10, 4.11, 9.12
4.NBT.A.2	Read and write multi-digit whole numbers less than or equal to 1,000,000 using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	4.7, 4.8, 4.9, 4.10, 4.11, 4.12, 4.13, 4.14, 4.21
4.NBT.A.3	Use place value understanding to round multi-digit whole numbers, less than or equal to 1,000,000, to any place.	4.14, 4.15, 4.16, 4.17
4.NBT.B.4	Fluently add and subtract multi-digit whole numbers, with sums less than or equal to 1,000,000, using the standard algorithm.	4.10, 4.18, 4.19, 4.20, 4.21, 4.22, 4.23, 6.8, 6.23, 6.24, 7.2, 9.4, 9.9

4.NBT.B.5	Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	5.6, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.21, 6.22, 6.23, 7.2, 7.9, 8.5, 9.5, 9.7, 9.8, 9.9, 9.11
4.NBT.B.6	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	6.13, 6.14, 6.15, 6.16, 6.17, 6.18, 6.19, 6.20, 6.21, 6.23, 7.10, 9.6, 9.7, 9.8, 9.9
4.NF.A.1	Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. (Denominators are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.)	2.4, 2.5, 2.7, 2.8, 2.9, 2.10, 2.11, 2.13, 2.14, 2.15, 3.15, 3.16, 9.2
4.NF.A.2	Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. (Denominators are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.)	2.3, 2.6, 2.12, 2.13, 2.14, 2.15, 2.16, 3.15, 9.2
4.NF.B.3	Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. (Denominators are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.)	3.7, 9.1
4.NF.B.3a	Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. *Example: 3/4 = 1/4 + 1/4 + 1/4*.	3.8, 3.9, 9.2

4.NF.B.3b	Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.*	3.7, 3.8, 9.2
4.NF.B.3c	Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	3.9, 3.10, 3.11, 3.12, 3.14, 3.19, 4.19, 8.2, 8.7, 8.8, 9.2, 9.3
4.NF.B.3d	Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	3.10, 3.11, 3.12, 3.13, 3.15, 3.19, 3.20, 9.2, 9.3
4.NF.B.4	Multiply a fraction by a whole number. (Denominators are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.)	3.1, 3.2, 3.3, 3.4, 3.19, 3.20, 5.16, 8.2, 8.7, 8.8, 9.1, 9.12
4.NF.B.4a	Understand a fraction *a/b* as a multiple of 1/*b*. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).*	3.1, 3.2, 3.3, 3.5, 3.6
4.NF.B.4b	Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)*	3.4, 3.5, 3.6, 8.7
4.NF.B.4c	Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*	3.2, 3.5, 3.6, 3.10, 3.18, 5.15

4.NF.C.5	Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100*.	3.16, 3.17, 3.18, 3.19, 4.2, 4.5, 9.1, 9.3
4.NF.C.6	Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram*; *represent 62/100 of a dollar as $0.62.*	4.1, 4.2, 4.5, 9.3
4.NF.C.7	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.	4.2, 4.3, 4.4, 4.5, 9.3
4.MD.A.1	Know relative sizes of measurement units within one system of units including: ft, in; km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. (Conversions are limited to one-step conversions.) Record measurement equivalents in a two-column table. *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...*	5.7, 5.8, 5.9, 5.11, 5.12, 5.14, 5.18
4.MD.A.2	Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving whole numbers and/or simple fractions (addition and subtraction of fractions with like denominators and multiplying a fraction times a fraction or a whole number), and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	5.8, 5.9, 5.10, 5.11, 5.12, 5.13, 5.14, 5.15, 5.17, 6.12, 6.22, 6.23

4.MD.A.3	Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor*.	5.16, 5.17, 6.15, 6.22, 8.7, 8.9
4.MD.B.4	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection*.	3.13, 3.14
4.MD.C.5	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.	7.5, 7.6, 7.7
4.MD.C.5a	An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle	7.7, 7.8, 7.9, 7.11
4.MD.C.5b	An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.	7.9, 7.10
4.MD.C.5c	An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.	
4.MD.C.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	7.9, 7.10, 7.11, 7.14
4.MD.C.7	Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems, e.g., by using an equation with a letter for the unknown angle measure.	7.8, 7.9, 7.11, 7.12, 7.13, 7.14, 7.15, 8.10

4.MD.D.8	Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real-world problems.	
4.G.A.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.10, 7.11, 7.12, 7.15, 7.16, 8.1, 8.3, 8.5, 8.6, 8.9, 9.11
4.G.A.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles	7.16, 8.1, 8.2, 8.3, 8.4, 8.6, 8.9
4.G.A.3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 8.10

Acceleration in Mathematics within the context of Illustrative Mathematics

Diagnose	**Check Your Readiness Assessments and Teacher Guides** • assess prerequisite standards; • provide guidance to support planning for learning acceleration; • offer varied problem types; and • are available in two versions of each pre-unit assessment.
Plan	**Check Your Readiness** gives cues as to when the prerequisite knowledge will be needed. **Adaptation Packs** provide guidance on whole-group acceleration supports **Accelerate Math Materials** are designed for small groups and address prerequisite knowledge standards.
Deliver	During the **Deliver** phase, follow through on the plan. Remember that the plan is not a commitment in the strictest sense. Teachers should feel empowered to adjust as you move through the plan and engage in the acceleration cycle at the lesson level and implement just-in-time supports designed for alignment to your high-quality resource.
Monitor	**To Monitor,** use daily student work from tasks embedded in the curriculum and student work from the support session. Use information gained about student understanding to plan next instructional steps. IM provides suggestions in the form of Cool down guidance to assist teachers in interpreting the urgency of students daily unfinished learning. Each Cool-down is classified in one of three ways: ● **More Chances** suggests to the teacher that there is no need to stop and reteach at this point. There are additional lessons and examples *coming next to support the skill* and the standard should not yet be secure in student knowledge. ● **Points to Emphasize** is the label for cool downs that have key details, definitions, or steps that should be noted. If students struggle with these items, the teacher is guided on where in the next couple lessons to *emphasize* the details and support the unfinished learning. ● A **Press Pause** cool down is a stopping point within the unit where the skill should be retaught and supported with additional examples. *Future lessons are dependent* on students being confident in these items.