Louisiana Guide to Implementing Illustrative Mathematics
Grade 8

To assist teachers with the implementation of the Illustrative Mathematics curriculum for Grade 8, 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.

Updated on July 20, 2023

Table of Contents

Suggested Implementation Calendar 3

Standards by Unit 4

Standards by Lesson 6

Louisiana Standards Alignment 10

Acceleration in Mathematics 15

Grade 8 Suggested Implementation Calendar

Grade 8	Unit	Approximate Number of Days	Number of Lessons
Weeks 1-4	Unit 1: Rigid Transformations and Congruence	19-20 Days	17 Lessons
Weeks 5-7	Unit 2: Dilations, Similarity, and Introducing Slope	15-16 Days	13 Lessons
Weeks 8-10	Unit 3: Linear Relationships	16-17 Days	14 Lessons
Weeks 11-14	Unit 4: Linear Equations and Linear Systems	18-19 Days	16 Lessons
Weeks 15-19	Unit 5: Functions and Volume	26-27 Days	22 Lessons
Weeks 20-22	Unit 6: Associations in Data	13-14 Days	11 Lessons
Weeks 23-26	Unit 7: Exponents in Scientific Notation	18-19 Days	16 Lessons
Weeks 27-30	Unit 8: Pythagorean Theorem	17-18 Days	15 Lessons
Weeks 31-33	Unit 9: Putting It All Together *(Optional Unit)*	0-10 Days	2 Lessons
Weeks 34-36	FLEX		

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 8: Standards by Unit								
Unit 1	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**	**Unit 6**	**Unit 7**	**Unit 8**	**Unit 9**
8.G.A.1 8.G.A.1.a 8.G.A.1.b 8.G.A.1.c 8.G.A.2 8.G.A.3 8.G.A.5	8.G.A 8.G.A.2 8.G.A.3 8.G.A.4 8.G.A.5 8.EE.B.6	8.EE.B 8.EE.B.5 8.EE.B.6 8.EE.C 8.EE.C.8.a 8.G.A.1	8.EE.C 8.EE.C.7 8.EE.C.7.a 8.EE.C.7.b 8.EE.C.8 8.EE.C.8.a 8.EE.C.8.b	8.F.A 8.F.A.1 8.F.A.2 8.F.A.3 8.G.C 8.G.C.9 8.F.B 8.F.B.4 8.F.B.5	8.SP.A 8.SP.A.1 8.SP.A.2 8.SP.A.3 8.SP.A.4	8.EE.A 8.EE.A.2 8.G.B 8.G.B.6 8.G.B.7 8.G.B.8 8.NS.A 8.NS.A.1 8.NS.A.2 8.F.B	8.EE.A.1 8.EE.A.3 8.EE.A.4	8.F.A.1 8.G.A 8.G.A.5 8.F.B 8.SP.A
Prerequisite Standards: 7.NS.A 8.G.A.1 8.G.A.1.b 7.G.A 7.G.A.2 7.G.B.5 4.MD.A 4.MD.C.5 4.MD.C	Prerequisite Standards: 5.NBT.B.7 5.NF.B.3 6.NS.A 7.NS.A 7.RP.A.2 7.RP.A.2.a 8.G.A 8.G.A.2 8.G.A.4 3.G.A 7.G.A.1 4.MD.C.5	Prerequisite Standards: 5.OA.B.3 6.NS.A 6.NS.A.1 6.NS.B.3 7.NS.A 7.RP.A.2 7.RP.A.2.a 6.EE.A.3 6.G.A.1 7.G.A 5.MD.C.3	Prerequisite Standards: 6.EE.B.5 6.EE.C.9 7.NS.A.1	Prerequisite Standards: 6.EE.A 6.EE.B.5 6.G.A.2 7.G.B.4	Prerequisite Standards: 8.EE.B.6 5.G.A.2 6.SP.B.4	Prerequisite Standards: 5.NF.B.5.b 5.NBT.A.2 5.NBT.A.3.a 6.EE.A.1	Prerequisite Standards: 5.NF.B.4 6.RP.A.1 6.EE.A.1 7.NS.A.2.d 8.EE.A.2 8.G.A.1 5.G.B.4 6.G.A.1	Prerequisite Standards: 7.G.A 7.G.B

Standards by Lesson

Grade 8: Standards by Lesson	
Unit 1 Lessons	**Standards**
1	8.G.A.1
2	8.G.A.1
3	8.G.A.1
4	8.G.A.1
5	8.G.A.3
6	8.G.A.1, 8.G.A.3
7	8.G.A.1.a, 8.G.A.1.b
8	8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c
9	8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c
10	8.G.A.1.a, 8.G.A.1.b
11	8.G.A.1, 8.G.A.2
12	8.G.A.2
13	8.G.A.1.a, 8.G.A.2
14	8.G.A.1, 8.G.A.5
15	8.G.A.2, 8.G.A.5
16	8.G.A.5, 8.G.B.6
17	8.G.A
Unit 2 Lessons	**Standards**
1	8.G.A
2	8.G.A
3	8.G.A
4	8.G.A, 8.G.A.3
5	8.G.A, 8.G.A.3
6	8.G.A.2, 8.G.A.4
7	8.G.A.2, 8.G.A.4
8	8.G.A, 8.G.A.5
9	8.G.A, 8.G.A.4
10	8.EE.B.6
11	8.EE.B.6, 8.G.A
12	8.EE.B.6, 8.G.A, 8.G.A.3
13	8.G.A.4, 8.G.A.5
Unit 3 Lessons	**Standards**
1	8.EE.B, 8.EE.B.5
2	8.EE.B, 8.EE.B.5
3	8.EE.B, 8.EE.B.5
4	8.EE.B, 8.EE.B.5
5	8.EE.B
6	8.EE.B, 8.EE.B.5
7	8.EE.B, 8.EE.B.6
8	8.EE.B, 8.G.A.1
9	8.EE.B

10	8.EE.B, 8.EE.B.6
11	8.EE.B, 8.EE.B.6
12	8.EE.B, 8.EE.C
13	8.EE.C, 8.EE.C.8.a
14	8.EE.B.6, 8.EE.C.8.a
Unit 4 Lessons	**Standards**
1	8.EE.C.7
2	8.EE.C
3	8.EE.C, 8.EE.C.7
4	8.EE.C, 8.EE.C.7
5	8.EE.C, 8.EE.C.7
6	8.EE.C.7, 8.EE.C.7.b
7	8.EE.C.7.a
8	8.EE.C.7.a
9	8.EE.C, 8.EE.C.7, 8.EE.C.8

10	8.EE.C, 8.EE.C.8
11	8.EE.C.8
12	8.EE.C.8, 8.EE.C.8.a, 8.EE.C.8.b
13	8.EE.C.8, 8.EE.C.8.a
14	8.EE.C.8
15	8.EE.C.8, 8.EE.C.8.b, 8.EE.C.8.c
16	8.EE.C.8.c
Unit 5 Lessons	**Standards**
1	8.F.A.1
2	8.F.A.1
3	8.F.A, 8.F.A.1, 8.F.B.4
4	8.F.A.1, 8.F.A.3
5	8.F.A.1, 8.F.B, 8.F.B.5
6	8.F.B.5
7	8.F.A.2, 8.F.A.3

8	8.F.A.2, 8.F.A.3, 8.F.B.4
9	8.F.B.4
10	8.F.B, 8.F.B.4, 8.F.B.5
11	8.F.B, 8.F.B.4, 8.G.C
12	8.G.C
13	8.G.C.9
14	8.G.C.9
15	8.G.C.9
16	8.G.C.9
17	8.F.A.1, 8.F.B, 8.G.C, 8.G.C.9
18	8.F.A.3, 8.F.B, 8.G.C.9
19	8.G.C, 8.G.C.9
20	8.G.C, 8.G.C.9
21	8.G.C.9
22	8.F.A, 8.G.C.9

Unit 6 Lessons	Standards
1	8.SP.A, 8.SP.A.1
2	8.SP.A.1
3	8.SP.A.1, 8.SP.A.3
4	8.SP.A.1, 8.SP.A.2
5	8.SP.A.1, 8.SP.A.2
6	8.SP.A.1, 8.SP.A.2, 8.SP.A.3
7	8.SP.A.1
8	8.SP.A.1, 8.SP.A.2, 8.SP.A.3
9	8.SP.A.4
10	8.SP.A.4
11	8.SP.A

Unit 7 Lessons	Standards
1	8.EE.A.1
2	8.EE.A.1, 8.EE.A.3, 8.EE.A.4
3	8.EE.A.1, 8.EE.A.4
4	8.EE.A.1
5	8.EE.A.1
6	8.EE.A.1
7	8.EE.A.1
8	8.EE.A.1
9	8.EE.A.3, 8.EE.A.4
10	8.EE.A.3, 8.EE.A.4
11	8.EE.A.1, 8.EE.A.3, 8.EE.A.4
12	8.EE.A.3, 8.EE.A.4
13	8.EE.A.3, 8.EE.A.4
14	8.EE.A.1, 8.EE.A.3, 8.EE.A.4
15	8.EE.A.4
16	8.EE.A.3, 8.EE.A.4

Unit 8 Lessons	Standards
1	8.EE.A.2, 8.G.B, 8.G.B.6, 8.NS.A.2
2	8.EE.A.2, 8.F.B, 8.NS.A
3	8.EE.A.2, 8.NS.A 8.NS.A.2
4	8.EE.A.2 8.NS.A.2
5	8.EE.A.2 8.NS.A.2
6	8.G.B, 8.G.B.6, 8.G.B.7
7	8.G.B, 8.G.B.6, 8.G.B.7
8	8.G.B, 8.G.B.7
9	8.G.B, 8.G.B.6
10	8.EE.A.2, 8.G.B.7 8.NS.A
11	8.G.B.8
12	8.EE.A.2, 8.NS.A.2
13	8.EE.A.2, 8.NS.A.2

14	8.EE.A, 8.NS.A, V8.NS.A.1
15	8.NS.A.1
16	8.G.B.7
Unit 9 Lessons	**Standards**
1	8.G.A
2	8.G.A, 8.G.A.5
3	8.G.A
4	8.F.A.1, 8.F.B, 8.SP.A
5	8.SP.A
6	8.F.B, 8.SP.A

Louisiana Alignment

Standard Code	Standard Language	Aligned Lessons
8.NS.A.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually. Convert a decimal expansion which repeats eventually into a rational number by analyzing repeating patterns.	Unit 8: Lessons 14, 15
8.NS.A.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). *For example, by truncating the decimal expansion of, show that is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations to the hundredths place*.	Unit 8: Lessons 1, 4, 5, 12, 13
8.EE.A.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.	Unit 7: Lessons 2, 3, 4, 5, 6, 7, 8, 11, 14
8.EE.A.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 =$ p, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that is irrational.	Unit 8: Lessons 2, 83, 4, 5, 10, 12, 13
8.EE.A.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as 3 times 10^8 and the population of the world as 7 times 10^9, and determine that the world population is more than 20 times larger*.	Unit 7: Lessons 9, 10, 11, 12, 14, 16
8.EE.A.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	Unit 7: Lessons 10, 11, 12, 13, 14, 15, 16

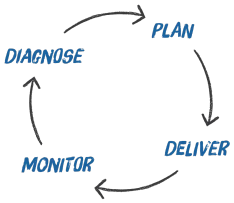
8.EE.B.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*	Unit 3: Lessons 2, 3, 4, 6
8.EE.B.6	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.	Unit 2: Lessons 10, 11, 12 Unit 3: Lessons 7, 10, 11, 14
8.EE.C.7	Solve linear equations in one variable.	Unit 4: Lessons 3, 4, 5, 6, 9
8.EE.C.7a	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).	Unit 4: Lessons 7, 8
8.EE.C.7b	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	Unit 4: Lesson 6
8.EE.C.8	Analyze and solve pairs of simultaneous linear equations.	Unit 4: Lessons 9, 10, 11, 12, 13, 14, 15, 16
8.EE.C.8a	Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.	Unit 3: Lessons 13, 14 Unit 4: Lessons 12, 13
8.EE.C.8b	Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6*.	Unit 4: Lessons 12, 15

8.EE.C.8c	Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair*.	
8.F.A.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in this grade level.)	Unit 5: Lessons 1, 2, 3, 4, 5, 17 Unit 9: Lesson 1
8.F.A.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change*.	Unit 5: Lessons 7, 8
8.F.A.3	Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; categorize functions as linear or nonlinear when given equations, graphs, or tables. *For example, the function* $A = s^2$ *giving the area of a square as a function of its side length is not linear because its graph contains the points (1, 1), (2, 4) and (3, 9), which are not on a straight line*.	Unit 5: Lessons 4, 7, 8, 18
8.F.B.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	Unit 5: Lessons 8, 9, 10, 11
8.F.B.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	Unit 5: Lessons 5, 6, 10
8.G.A.1	Verify experimentally the properties of rotations, reflections, and translations:	Unit 1: Lessons 2, 3, 4, 6, 11, 14 Unit 3: Lesson 8

8.G.A.1a	Lines are taken to lines, and line segments to line segments of the same length.	Unit 1: Lessons 7, 8, 9, 10, 13
8.G.A.1b	Angles are taken to angles of the same measure.	Unit 1: Lessons 7, 8, 9, 10
8.G.A.1c	Parallel lines are taken to parallel lines.	Unit 1: Lesson 9
8.G.A.2	Explain that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them. (Rotations are only about the origin and reflections are only over the *y*-axis and *x*-axis in Grade 8.)	Unit 1: Lessons 11, 12, 13, 15 Unit 2: Lessons 6, 7
8.G.A.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. (Rotations are only about the origin, dilations only use the origin as the center of dilation, and reflections are only over the *y*-axis and *x*-axis in Grade 8.)	Unit 1: Lessons 5, 6 Unit 2: Lessons 4, 5, 12
8.G.A.4	Explain that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them. (Rotations are only about the origin, dilations only use the origin as the center of dilation, and reflections are only over the *y*-axis and *x*-axis in Grade 8.)	Unit 2: Lessons 6, 7, 9
8.G.A.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so*.	Unit 1: Lessons 14, 15, 16 Unit 2: Lessons 8, 13 Unit 9: Lesson 2
8.G.B.6	Explain a proof of the Pythagorean Theorem and its converse using the area of squares.	Unit 8: Lessons 7, 9
8.G.B.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	Unit 8: Lessons 6, 7, 8, 10

8.G.B.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	Unit 8: Lesson 11
8.G.C.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	Unit 5: Lessons 12, 17, 19, 20
8.SP.A.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	Unit 6: Lessons 1, 2, 3, 4, 5, 6, 7, 8
8.SP.A.2	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	Unit 6: Lessons 4, 5, 6, 8
8.SP.A.3	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height*.	Unit 6: Lessons 6, 8
8.SP.A.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*	Unit 6: Lessons 9, 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.