

Model Curricula Alignment Template for Mathematics

Resource Name: Imagine Learning Illustrative Mathematics Grade 3

Model Unit Name	Model Unit Standards	Resource Unit(s) Number and Lessons	Standard Frequency
<i>This is the title of the unit in the model curricula</i>	<i>These are the standards addressed in the unit</i>	<i>This is the unit(s) that aligns with the model unit from the resource</i>	<i>This is the total number of lessons the standard is addressed</i>
Pacing - Illustrative Mathematics 3-5 lessons are designed to fit within a class period that is at least 60 minutes long. Pacing guidance for each activity is provided in the lesson plans.			
Understanding Multiplication and Division			
	3.OA.A.1	Unit 1, Lesson 9: Multiplication as Equal Groups	12 Lessons
		Unit 1, Lesson 12: Represent and Solve Multiplication Problems	
	3.OA.A.2	Unit 4, Lesson 1: How Many Groups?	12 Lessons
		Unit 4, Lesson 4: Interpret Division Expressions	
	3.MD.B.3	Unit 1, Lesson 2: Represent Data and Solve Problems	8 Lessons
		Unit 1, Lesson 5: Represent Data in Scaled Bar Graphs	
Connecting and Using Multiplication and Division			
	3.OA.A.3	Unit 1, Lesson 12: Represent and Solve Multiplication Problems	16 Lessons
		Unit 4, Lesson 5: Write Division Expressions	
	3.OA.A.4	Unit 1, Lesson 14: Write and Solve Equations with Unknowns	3 Lessons
Unit 4, Lesson 20: Strategies for Dividing			

	3.OA.B.5	Unit 1, Lesson 20: The Commutative Property	15 Lessons
		Unit 2, Lesson 5: Represent Products as Areas	
	3.OA.B.6	Unit 4, Lesson 6: Division as an Unknown Factor	4 Lessons
		Unit 4, Lesson 7: Relate Multiplication and Division	
3.OA.C.7	Unit 4, Lesson 10: Explore Multiplication Strategies with Rectangles	22 Lessons	
	Unit 4, Lesson 20: Strategies for Dividing		
Computing with Whole Numbers			
	3.NBT.A.1	Unit 3, Lesson 13: Multiples of 100	5 Lessons
		Unit 3, Lesson 15: Round to the Nearest Ten and Hundred	
	3.NBT.A.2	Unit 3, Lesson 6: Use Strategies and Algorithms to Add	20 Lessons
		Unit 3, Lesson 12: Subtract Strategically	
	3.NBT.A.3	Unit 4, Lesson 12: Multiply Multiples of 10	6 Lessons
		Unit 4, Lesson 17: Use the Four Operations to Solve Problems	
	3.OA.C.7	Unit 4, Lesson 11: Multiplication Strategies on Ungridded Rectangles	22 Lessons
		Unit 4, Lesson 8: Relate Quotients to Familiar Products	
	3.OA.D.8	Unit 3, Lesson 17: Does It Make Sense?	9 Lessons
		Unit 3, Lesson 18: Diagrams and Equations for Word Problems	
	3.OA.D.9	Unit 4, Lesson 9: Patterns in the Multiplication Table	7 Lessons
		Unit 2, Lesson 11: Area and the Multiplication Table	

Exploring Measurement and Data			
	3.MD.A.1	Unit 6, Lesson 9: Time to the Nearest Minute	5 Lessons
		Unit 6, Lesson 10: Solve Problems Involving Time (Part 1)	
	3.MD.A.2	Unit 6, Lesson 6: Estimate and Measure Weight	7 Lessons
		Unit 6, Lesson 12: Ways to Represent Measurement Situations	
	3.MD.B.3	Unit 1, Lesson 2: Represent Data and Solve Problems	8 Lessons
		Unit 1, Lesson 4: Create Scaled Picture Graphs	
	3.MD.B.4	Unit 6, Lesson 3: Measure in Halves and Fourths of an Inch	6 Lessons
		Unit 6, Lesson 5: Represent Measurement Data on Line Plots	
	Understand Area and Perimeter		
	3.MD.C.5	Unit 2, Lesson 1: What is Area?	3 Lessons
		Unit 2, Lesson 2: How Do We Measure Area?	
	3.MD.C.6	Unit 2, Lesson 3: Tile Rectangles	5 Lessons
		Unit 2, Lesson 4: Area of Rectangles	
	3.MD.C.7	Unit 2, Lesson 10: Solve Area Problems	16 Lessons
		Unit 2, Lesson 14: Find the Area of Figures with Missing Sides	
	3.MD.D.8	Unit 7, Lesson 9: Perimeter Problems	11 Lessons
		Unit 8, Lesson 10: Problem Solving with Perimeter and Area	
	Reasoning About Two-Dimensional Shapes		
	3.MD.D.8	Unit 7, Lesson 6: Distance Around Shapes	11 Lessons
		Unit 7, Lesson 8: Find the Perimeter	

	3.G.A.1	Unit 7, Lesson 1: What Attributes Do You See?	6 Lessons
		Unit 7, Lesson 3: Attributes that Define Shapes	
	3.G.A.2	Unit 5, Lesson 1: Name the Parts	2 Lessons
Unit 5, Lesson 2: Name Parts as Fractions			
Understanding Fractions			
	3.NF.A.1	Unit 5, Lesson 2: Name Parts as Fractions	6 Lessons
		Unit 5, Lesson 4: Build Fractions from Unit Fractions	
	3.NF.A.2	Unit 5, Lesson 5: To the Number Line	9 Lessons
		Unit 5, Lesson 6: Locate Unit Fractions on the Number Line	
Reasoning about Fraction Comparisons and Equivalence			
	3.NF.A.1	Unit 5, Lesson 4: Build Fractions from Unit Fractions	6 Lessons
		Unit 8, Lesson 3: Fractions Round Table	
	3.G.A.2	Unit 1, Lesson 1: Name the Parts	2 Lessons
Unit 5, Lesson 2: Name Parts as Fractions			

Scope and Sequence			
If a district uses this resource to implement the state model curriculum for grade 3, the following scope and sequence should be followed to ensure alignment and attention to the progressions of mathematics.			
Unit Number/Title	Lesson Title	Lesson Objectives	# of Days/Weeks (assume 1 hour of instruction)
Unit 1: Introducing Multiplication			22-23 Days of Instruction -- 5 Weeks
	Interpret and Represent Data on Scaled Graphs		
	Lesson 1	Interpret picture graphs and bar graphs to generate questions (orally and in writing) about the data.	
	Lesson 2	Represent data using bar graphs and picture graphs.	
		Solve one- and two-step problems using addition and subtraction within 20.	
	Lesson 3	Interpret scaled picture graphs to generate questions (orally and in writing) about the data.	
	Lesson 4	Represent data using scaled picture graphs.	
	Lesson 5	Represent data using scaled bar graphs.	
	Lesson 6	Choose an appropriate scale for a bar graph that represents a given data set.	
	Lesson 7	Solve one-step "how many more" and "how many fewer" problems within 100, based on the data presented in scaled bar graphs.	
	Lesson 8	Solve one- and two-step "how many more" and "how many fewer" problems within 100, based on the data presented in scaled bar graphs.	
	From Graphs to Multiplication		
	Lesson 9	Build an understanding of multiplication as equal groups.	

		Represent a situation involving equal groups in a way that makes sense to students.	
	Lesson 10	Interpret a situation involving equal groups and represent it with a diagram.	
		Make sense of tape diagrams that represent multiplication.	
	Lesson 11	Write multiplication expressions to represent situations involving equal groups and diagrams.	
	Lesson 12	Represent and solve multiplication problems.	
	Lesson 13	Relate equations to multiplication situations and diagrams.	
		Write equations for multiplication situations and diagrams using a symbol for the unknown number.	
	Lesson 14	Relate equations to multiplication situations and diagrams using a symbol for the unknown number.	
		Write equations for multiplication situations and diagrams using a symbol for the unknown number.	
	Lesson 15	Solve multiplication problems.	
	Represent Multiplication with Arrays and the Commutative Property		
	Lesson 16	Build arrays with physical objects and describe them in terms of multiplication.	
		Describe an array as an arrangement of objects into rows with an equal number of objects in each row and into columns with an equal number in each column.	
	Lesson 17	Relate arrays to drawings of equal groups and describe them in terms of multiplication.	
	Lesson 18	Represent multiplication situations with arrays and multiplication expressions.	
	Lesson 19	Represent an array situation with an equation with a symbol for the unknown number.	

		Solve multiplication problems involving arrays.	
	Lesson 20	Describe the commutative property of multiplication using arrays.	
	Lesson 21 Optional	Make choices and assumptions.	
		Represent data using scaled bar graphs to communicate results.	
		Solve real-world problems involving equal groups.	
Unit 2: Area and Multiplication			15-17 Days of Instruction -- 3 Weeks
	Concepts of Area Measurement		
	Lesson 1	Describe the relative size of plane figures in their own language.	
	Lesson 2	Explore area by building shapes with unit squares.	
		Use unit squares to measure area.	
	Lesson 3	Explain that rectangles that can be covered by the same number of unit squares without gaps or overlaps have the same area.	
		Find the area of rectangles (within 24 square units) by counting unit squares.	
	Lesson 4	Describe and represent the area of a rectangle as the total number of unit squares arranged in equal groups of rows and columns.	
		Find the area of rectangles (within 60 square units) by counting unit squares	
	Relate Area to Multiplication		
	Lesson 5	Relate multiplication to finding the area of rectangles.	
	Lesson 6	Describe square units based on different linear units of measurement.	
		Use square inches and square centimeters to measure the area of a rectangle.	
	Lesson 7	Use square feet and square meters to measure the area of a rectangle.	
	Lesson 8	Determine the area of rectangles not displayed on a grid.	

	Lesson 9	Find the area of rectangles by measuring and multiplying the side lengths.	
	Lesson 10	Solve real-world and mathematical problems involving area.	
	Lesson 11 Optional	Explore connections between area and the multiplication table.	
	Find Area of Figures Composed of Rectangles		
	Lesson 12	Find the area of figures composed of rectangles.	
		Recognize that area is additive.	
	Lesson 13	Calculate the area of ungridded figures made of rectangles using multiplication and addition.	
	Lesson 14	Calculate the area of ungridded figures composed of rectangles, including figures with missing side lengths.	
Lesson 15	Solve problems involving the area of ungridded figures composed of rectangles, including figures with missing side lengths.		
Unit 3: Wrapping Up Addition and Subtraction Within 1,000			22-23 Days of Instruction -- 5 Weeks
	Add Within 1,000		
	Lesson 1	Represent numbers to 1,000 in different ways using place value understanding.	
	Lesson 2	Solve addition and subtraction problems within 1,000 in a way that makes sense to them.	
	Lesson 3	Add within 1,000 in a way that makes sense to them.	
	Lesson 4	Add within 1,000.	
		Relate base-ten diagrams to written algorithms for addition.	
Lesson 5	Relate written algorithms to each other using place value understanding.		

	Lesson 6	Add within 1,000 using an algorithm or another strategy based on the numbers being added.
	Subtract Within 1,000	
	Lesson 7	Subtract within 1,000 in a way that makes sense to them.
	Lesson 8	Relate base-ten diagrams to written algorithms for subtraction.
	Lesson 9	Analyze and use a subtraction algorithm with the numbers written in expanded form.
	Lesson 10	Relate subtraction algorithms to one another using place value understanding.
		Subtract numbers within 1,000 using another algorithm based on place value.
	Lesson 11	Analyze different steps in subtraction algorithms and reason about when certain steps might be more productive.
	Lesson 12	Subtract within 1,000 using algorithms or other strategies based on the numbers in the problem.
	Round Within 1,000	
	Lesson 13	Recognize that numbers are often approximated by their closest multiples of 10 or 100.
		Understand the meaning of the nearest multiple of 100.
	Lesson 14	Identify the closest multiples of 10 and 100 for numbers within 1,000.
		Understand that rounding is a formal way to say which number a given number is closer to, and that number is often a multiple of 10 or 100.
		Understand the meaning of “the closest multiple of 10.”
	Lesson 15	Round whole numbers within 1,000 to the nearest ten and hundred, using the convention of rounding up when the number is halfway between two multiples of 10 or 100.
	Lesson 16	Recognize and generalize patterns in the rounding of whole numbers within 1,000.

	Solve Two-Step Problems		
	Lesson 17	Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	
		Solve two-step word problems using addition and subtraction in a way that makes sense to them.	
	Lesson 18	Relate diagrams and equations to two-step word problems.	
	Lesson 19	Represent and solve two-step word problems using equations with a letter standing for the unknown quantity.	
	Lesson 20	Represent and solve two-step word problems.	
	Lesson 21 Optional	Add and subtract within 1,000 to solve real-world problems.	
		Round whole numbers to the nearest ten or hundred to solve problems.	
Unit 4: Relating Multiplication to Division			23-24 Days of Instruction -- 5 Weeks
	What is Division?		
	Lesson 1	Solve “how many groups?” problems in a way that makes sense to them.	
	Lesson 2	Solve “how many in each group?” problems in a way that makes sense to them.	
	Lesson 3	Interpret and relate drawings and descriptions of division situations.	
		Understand that a division situation may involve finding an unknown number of groups or finding an unknown number of objects in each group.	
	Lesson 4	Interpret division expressions.	
		Understand that the same division expression can be used to represent both types of division situations.	
	Lesson 5	Solve “how many groups?” and “how many in each group?” problems.	
		Write division expressions to represent division situations.	
	Relate Multiplication and Division		
	Lesson 6	Explain the relationship between multiplication and division equations.	

		Interpret division equations and multiplication equations with a missing factor.	
	Lesson 7	Represent situations involving equal groups using multiplication and division equations with a symbol for the unknown quantity.	
		Use multiplication and division within 100 to solve problems involving equal groups.	
	Lesson 8	Identify known single-digit multiplication facts and their related division facts.	
	Lesson 9	Identify arithmetic patterns in the multiplication table and use them to find unknown multiplication facts.	
		Recognize that multiplication is commutative.	
	Lesson 10	Use area diagrams to explore strategies based on properties of multiplication	
	Lesson 11	Apply associative and distributive properties of multiplication to find products within 100.	
		Recognize that multiplication is associative and can be distributed over addition.	
	Multiplying Larger Numbers		
	Lesson 12	Multiply one-digit whole numbers by multiples of 10 using strategies based on place value and the properties of operations.	
	Lesson 13	Multiply within 100, where one factor is a teen number, in a way that makes sense to them.	
	Lesson 14	Make sense of representations of multiplication (base-ten blocks and area diagrams) where one factor is a teen number.	
	Lesson 15	Multiply within 100, where one factor is a teen number.	
	Lesson 16	Multiply within 100, where one factor is greater than 20.	
		Use properties based on place value and properties of operations to multiply.	

	Lesson 17	Represent two-step word problems using equations with a letter standing for the unknown quantity.	
		Solve two-step word problems using the four operations.	
	Dividing Larger Numbers		
	Lesson 18	Solve problems involving division within 100, with quotients over 10, in a way that makes sense to them.	
	Lesson 19	Recognize that division of larger numbers can still mean finding the number of groups or finding the size of each group.	
		Use base-ten blocks to represent division where the quotient is more than 10.	
	Lesson 20	Analyze strategies for representing and reasoning about division.	
		Divide within 100 using strategies based on place value and properties of operations.	
	Lesson 21	Represent two-step word problems using equations with a letter standing for the unknown quantity.	
		Solve two-step word problems using the four operations.	
	Lesson 22 Optional	Represent and solve “How many groups?” and “How many in each group?” problems in a real-world context.	
		Solve two-step problems in a real-world context.	
Unit 5: Fractions as Numbers			19-20 Days of Instruction -- 4 Weeks
	Introduction to Fractions		
	Lesson 1	Partition shapes into 2, 3, 4, 6, or 8 parts with equal area and name those parts as halves, thirds, fourths, sixths, and eighths.	
		Recognize that equal-size parts in a shape can be named with numbers called fractions.	
	Lesson 2	Express the area of each part as a unit fraction of the whole.	
		Partition shapes into halves, thirds, fourths, sixths, and eighths.	

	Lesson 3	Understand a fraction a/b as the quantity formed by a parts of size $1/b$.
	Lesson 4	Build non-unit fractions and whole numbers from unit fractions.
	Fractions on the Number Line	
	Lesson 5	Extend understanding of whole numbers on the number line to see fractions on a number line.
	Lesson 6	Partition the interval from 0 to 1 and locate unit fractions within that interval.
	Lesson 7	Locate non-unit fractions on the number line (including fractions greater than 1).
	Lesson 8	Locate whole numbers on the number line given the location of a unit fraction and express them as fractions.
		Recognize that whole numbers can be written as fractions.
	Lesson 9	Locate 1 on the number line given the location of a non-unit fraction.
	Equivalent Fractions	
	Lesson 10	Identify equivalent fractions.
		Understand two fractions as equivalent if they are the same size and the parts refer to the same whole.
	Lesson 11	Use diagrams to explain or show fraction equivalence.
		Use diagrams to generate equivalent fractions.
	Lesson 12	Identify and generate equivalent fractions.
		Understand two fractions as equivalent if they are at the same point on a number line.
	Lesson 13	Express whole numbers as fractions.
		Recognize fractions that are equivalent to whole numbers.

	Fraction Comparisons		
	Lesson 14	Represent and compare fractions in a way that makes sense to them.	
	Lesson 15	Compare two fractions with the same denominator by reasoning about their size.	
	Lesson 16	Compare two fractions with the same numerator by reasoning about their size.	
	Lesson 17	Compare two fractions with the same numerator or the same denominator.	
		Record the results of comparison with the symbols $>$, $=$, or $<$.	
	Lesson 18 Optional	Apply fraction understanding to create geometric designs.	
Unit 6: Measuring Length, Time, Liquid Volume, and Weight			17-18 Days of Instruction -- 4 Weeks
	Measurement Data on Line Plots		
	Lesson 1	Measure lengths using a ruler marked with halves of an inch.	
	Lesson 2	Measure lengths using rulers marked with fourths of an inch.	
	Lesson 3	Measure lengths using a ruler marked with both halves and fourths of an inch.	
		Use equivalent fractions to describe length measurements.	
	Lesson 4	Interpret line plots that display measurement data in fractions of an inch.	
	Lesson 5	Create a line plot where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters—to represent measurement data.	
		Generate measurement data by measuring lengths using a ruler marked with halves and fourths of an inch.	
Weight and Liquid Volume			
Lesson 6	Measure and estimate weights of objects using standard units of grams (g) and kilograms (kg).		

	Lesson 7	Estimate and compare liquid volumes of containers using informal units and liters.	
		Understand liquid volume as the amount of space that a liquid takes up.	
	Lesson 8	Measure and estimate liquid volumes of objects using standard units of liters (L).	
	Problems Involving Time		
	Lesson 9	Tell and write time to the nearest minute.	
	Lesson 10	Solve problems involving addition and subtraction of time intervals in minutes in a way that makes sense to them.	
	Lesson 11	Solve problems involving addition and subtraction of time intervals in minutes.	
	Measurement Problems in Context		
	Lesson 12	Ask and answer questions about situations involving measurements.	
		Interpret representations of situations involving measurements.	
	Lesson 13	Determine information that is needed to solve measurement problems.	
		Solve one-step word problems involving weight.	
	Lesson 14	Reason about quantities, questions, and solutions that make sense in measurement problems.	
		Solve one-step word problems involving time and liquid volume.	
	Lesson 15	Analyze strategies for solving problems and for presenting solutions.	
		Use the four operations to solve one-step word problems involving measurements.	
	Lesson 16 Optional	Apply knowledge of measurement and operations to design a game.	
Unit 7: Two-dimensional Shapes and Perimeter			17 Days of Instruction -- 4 Weeks
	Reason with Shapes		
	Lesson 1	Describe attributes of shapes.	

		Sort shapes based on attributes in a way that makes sense to them.
	Lesson 2	Sort triangles and quadrilaterals into subcategories.
		Understand that shared attributes of shapes can define a larger category, such as triangle or quadrilateral.
	Lesson 3	Describe and identify shapes using their distinguishing attributes.
	Lesson 4	Identify attributes of rhombuses, rectangles, and squares.
	Lesson 5	Draw examples of quadrilaterals that are not rhombuses, rectangles, or squares.
		Understand that shapes can be in more than one category.
	What is Perimeter?	
	Lesson 6	Describe perimeter as the length of the boundary of a flat shape.
		Find the perimeter of two-dimensional shapes.
	Lesson 7	Find the perimeter of two-dimensional shapes.
		Understand that many different shapes can have the same perimeter.
	Lesson 8	Find the perimeter of two-dimensional shapes given all or some of the side lengths.
	Lesson 9	Find unknown side lengths given the perimeter of a shape.
		Solve problems that involve perimeters of shapes.
	Expanding on Perimeter	
	Lesson 10	Solve problems that involve perimeter and area of rectangles
	Lesson 11	Draw rectangles with the same perimeter and different areas.
	Lesson 12	Draw rectangles with the same area and different perimeters.
	Design with Perimeter and Area	
	Lesson 13	Apply geometric understanding to solve problems about parks.
	Lesson 14	Apply geometric understanding to solve problems about wax prints.

	Lesson 15	Apply geometric understanding to solve problems about robots.	
Unit 8: Putting It All Together			17 Days of Instruction -- 4 Weeks
	Fraction Fun		
	Lesson 1	Estimate fractions represented in diagrams and on number lines.	
	Lesson 2	Record the results of comparisons with the symbols $>$, $=$, or $<$.	
		Represent fractions on a number line.	
	Lesson 3	Generalize key ideas about fractions, such as what fractions mean, whole numbers as fractions, and fraction comparisons.	
	Measurement and Data		
	Lesson 4	Apply understanding of area and perimeter to solve problems about design.	
	Lesson 5	Solve problems about the cost of finishing a room in a tiny house.	
	Lesson 6	Collect categorical data to create a data set with several categories.	
	Lesson 7	Draw a scaled bar graph to represent a data set with several categories.	
		Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.	
	Multiplication and Division Games		
	Lesson 8	Practice multiplication within 100.	
		Reflect on multiplication fluency.	
	Lesson 9	Practice finding products within 100 by playing multiplication games.	
	Lesson 10	Interpret representations of the relationship between multiplication and division.	
		Represent the relationship between multiplication and division.	
	Lesson 11	Practice dividing whole numbers within 100.	
	Create and Design		

	Lesson 12	Apply understanding of equal groups to create a Notice and Wonder activity.	
	Lesson 13	Apply understanding of equal groups and multiplication to create a How Many Do You See activity.	
	Lesson 14	Apply understanding of measuring objects to the nearest half and fourth of an inch to create an Estimation Exploration activity.	
	Lesson 15	Apply understanding of addition and subtraction within 1,000 to create a Number Talk activity.	

Supports of Diversity, Equity, and Inclusion

Please provide any information relative to supporting culturally responsive instruction, multi-language learners, and students with disabilities

Review Site Information:

URL: review-ct.ilclassroom.com

Username: CT@example.com

Password: teacher

Culturally Responsive Instruction:

Illustrative Mathematics includes culturally relevant materials and culturally responsive teaching and instructional practices. Materials are inclusive of a variety of cultures and ethnicities and are free from bias in the portrayal of ethnic groups, gender, age, class, cultures, religions, and people with disabilities.

We address racial, cultural, and religious bias in the following ways:

- The materials contain racial/ethnic balance in the main characters and illustrations.
- Minorities are represented as central figures in text and illustrations.
- Minority figures reflect qualities such as leadership, intelligence, imagination, and courage.
- The materials provide an opportunity various racial, ethnic, and cultural perspectives.
- The vocabulary or depiction of racism is avoided (i.e., insulting overtones).
- Race/culture stereotyping language is avoided.
- Biographical or historical content includes minority figures and their discoveries and contributions to society.

Multi-Language Learners:

In a problem-based mathematics classroom, sense-making and language are interwoven. Mathematics classrooms are language-rich and, therefore, language-demanding learning environments for every student. The linguistic demands of doing mathematics include reading, writing, speaking, listening, conversing, and representing (Aguirre & Bunch, 2012). Students are expected to say or write mathematical explanations, state assumptions, make conjectures, construct mathematical arguments, and listen to and respond to the ideas of others. To advance the mathematics and language learning of all students, the materials purposefully engage students in sense-making and using language to negotiate meaning with their peers. To support students who are learning

English in their development of language, this curriculum includes instruction devoted to fostering language development alongside mathematics learning, fostering language-rich environments where there is space for all students to participate.

This interwoven approach is grounded in four design principles that promote mathematical language use and development:

Principle 1. Support sense-making: Scaffold tasks and amplify language so students can make their own meaning. Students need multiple opportunities to talk about their mathematical thinking, negotiate meaning with others, and collaboratively solve problems with targeted guidance from the teacher. Teachers can make language more accessible by amplifying rather than simplifying speech or text. Simplifying includes avoiding the use of challenging words or phrases. Amplifying means anticipating where students might need support in understanding concepts or mathematical terms and providing multiple ways to access them.

Principle 2. Optimize output: Strengthen opportunities for students to describe their mathematical thinking to others orally, visually, and in writing. All students benefit from repeated, strategically optimized, and supported opportunities to articulate mathematical ideas into linguistic expression to communicate their ideas to others. Opportunities for students to produce output should be strategically optimized for both (a) important concepts of the unit or course, and (b) important disciplinary language functions (for example, explaining their reasoning, critiquing the reasoning of others, making generalizations, and comparing approaches and representations).

Principle 3. Cultivate conversation: Strengthen opportunities for constructive mathematical conversations. Conversations are back-and-forth interactions with multiple turns that build up ideas about math. Conversations act as scaffolds for students developing mathematical language because they provide opportunities to simultaneously make meaning, communicate that meaning, and refine how content understandings are communicated. During effective discussions, students pose and answer questions, clarify what is being asked and happening in a problem, build common understandings, and share experiences relevant to the topic. Meaningful conversations depend on the teacher using activities and routines as opportunities to build a classroom culture that motivates and values efforts to communicate.

Principle 4. Maximize meta-awareness: Strengthen the meta-connections and distinctions between mathematical ideas, reasoning, and language. Meta-awareness, consciously thinking about one's own thought processes or language use, develops when students consider how to improve their communication and reasoning about mathematical concepts. When students are

using language in ways that are purposeful and meaningful for themselves, in their efforts to understand—and be understood by—each other, they are motivated to attend to ways in which language can be both clarified and clarifying. Students learning English benefit from being aware of how language choices are related to the purpose of the task and the intended audience, especially if oral or written work is required. Both metacognitive and metalinguistic awareness are powerful tools to help students self-regulate their academic learning and language acquisition.

These design principles and related mathematical language routines, described below, ensure language development is an integral part of planning and delivering instruction. Moreover, they work together to guide teachers to amplify the most important language that students are expected to know and use in each unit.

Mathematical Language Routines

Mathematical Language Routines (MLRs) are instructional routines that provide structured but adaptable formats for amplifying, assessing, and developing students' language. The MLRs included in this curriculum were selected because they simultaneously support students' learning of mathematical practices, content, and language. They are particularly well-suited to meet the needs of linguistically and culturally diverse students learning mathematics while simultaneously acquiring English. These routines are flexible and can be adapted to support students at all stages of language development in using and improving their English and disciplinary language use.

These routines are included in the Curriculum Guide and noted below:

- MLR 1: Stronger and Clearer Each Time
- MLR 2: Collect and Display
- MLR 3: Clarify, Critique, Correct
- MLR 4: Information Gap
- MLR 5: Co-Craft Questions
- MLR 6: Three Reads
- MLR 7: Compare and Connect
- MLR 8: Discussion Supports

MLRs are included in select activities in each unit to provide all students with explicit opportunities to develop mathematical and academic language proficiency. These “embedded” MLRs are described in the teacher notes for the lessons in which they appear.

Each lesson also includes optional, suggested MLRs that can be used to support access and language development for English learners based on the language demands students will encounter. They are described in the activity narrative under the heading “Access for English Learners.” Teachers can use the suggested MLRs and language strategies as appropriate to provide students with access to an activity without reducing the mathematical demand of the task. When using these supports, teachers should take into account the language demands of the specific activity and the language needed to engage the content more broadly in relation to their students’ current ways of using language to communicate ideas as well as their students’ English language proficiency. Using these supports can help maintain student engagement in mathematical discourse and ensure that struggle remains productive. All of the supports are designed to be used as needed and use should fade out as students develop understanding and fluency with the English language.

In addition to the comprehensive pedagogical design of the program, Spanish translations are available for the educator components, including teacher slides, and the student components, including the student workbook (print version).

Materials are also available in Spanish as follows:

What's in Spanish for IM?

K-5	6-8	AGA
- Printed: Student Workbooks - eBook/PDF: Student, Teacher, Teacher Resource Pack - Spanish Lesson Cards Other Materials <i>(no solutions translated)</i> - Task Statements (PDF) - Cool-Down (PDF) - Practice Problems (PDF) - Unit Assessments (PDF) - Section Checkpoint Quizzes (PDF) - Family Supports (PDF) - Center Materials (PDF) - Glossary entries	<u>6-8 Courses Only (Not Acc.)</u> - Printed: Student Workbooks - eBook/PDF: Student Other Materials <i>(no solutions translated)</i> - Task Statements (PDF) - Cool-Down (PDF) - Practice Problems (PDF) - Unit Assessments Option B, (PDF) - Glossary entries	<u>Algebra 1 Only</u> eBook/PDF: Student Workbook *Print coming for BTS 2023 Other Materials <i>(no solutions translated)</i> - Task Statements (PDF) - Cool-Down (PDF) - Practice Problems (PDF) - Unit Assessments (PDF) - Modeling prompts - Glossary entries

Exceptional Learners:

Imagine Learning Illustrative Mathematics materials empower all students with activities that capitalize on their existing strengths and abilities to ensure that all learners can participate meaningfully in rigorous mathematical content. Lessons support a flexible approach to instruction and provide teachers with options for additional support to address the needs of a diverse group of

students, positioning all learners as competent, valued contributors. When planning to support access, teachers should consider the strengths and needs of their particular students.

Each lesson is carefully designed to maximize engagement and accessibility for all students. Purposeful design elements that support access for all learners but that are especially helpful for students with disabilities include:

Lesson Structures are Consistent

The structure of every lesson is the same: warm-up, activities, synthesis, and cool-down. By keeping the components of each lesson similar from day to day, the flow of work in class becomes predictable for students. This consistency reduces cognitive demand and enables students to focus on the mathematics at hand rather than the mechanics of the lesson.

Concepts Develop from Concrete to Abstract

Mathematical concepts are introduced simply, concretely, and repeatedly, with complexity and abstraction developing over time. Students begin with concrete examples and transition to diagrams and tables before relying exclusively on symbols to represent the mathematics they encounter.

Individual to Pair or Small Group to Whole Class Progression

Providing students with time to think through a situation or question independently before engaging with others allows students to carry the weight of learning, with support arriving just in time from the community of learners. This progression allows students to activate what they already know and continue to build from this base with others.

Opportunities to Apply Mathematics to Real-World Contexts

Giving students opportunities to apply the mathematics they learn clarifies and deepens their understanding of core math concepts and skills and provides motivation and support. Mathematical modeling is a powerful activity for all students, but especially students with disabilities. Each unit has a culminating activity designed to explore, integrate, and apply all the big ideas of the unit. Centering instruction on these contextual situations can provide students with disabilities an anchor on which to base their mathematical understandings.

Supplemental instructional strategies that can be used to increase access, reduce barriers and maximize learning are included in each lesson, listed in the activity narratives under “*Access for Students with Disabilities.*” Each support is aligned to the Universal

Design for Learning Guidelines and based on one of the three principles of UDL to provide alternative means of *engagement*, *representation*, or *action and expression*. These supports provide teachers with additional ways to adjust the learning environment so that students can access activities, engage in content, and communicate their understanding. In addition, these supports are tagged with the areas of cognitive functioning they are designed to address to help teachers identify and select appropriate supports for their students. Designed to facilitate access to Tier 1 instruction by capitalizing on student strengths to address challenges related to cognitive functions or disabilities, these strategies and supports are appropriate for any students who need additional support to access rigorous, grade-level content.

Teachers are encouraged to use what they know about their students' IEPs, strengths and challenges, and a UDL approach to ensure access.

There are embedded supports for exceptional students in most lessons. Teachers will find these in the **Teaching Notes** section. As of June 2020, Illustrative Mathematics 6-8 student-facing materials meet Section 508 compliance standards, meaning students can use assistive technology to navigate the site. Illustrative Mathematics K-5 digital materials were added during the 21-22 School Year and are 508 compliant as well. Outlined in the Curriculum Guide are features, supports, and strategies available.

The curriculum authors drew heavily on the UDL framework in the design of these materials. The curriculum's number one design principle is "Access for all." This foundational principle draws from the UDL framework. It shapes the instructional goals, recommended practices, lesson plans, and assessments to support a flexible approach to instruction, ensuring all students have an equitable opportunity to learn.

Imagine Learning software is browser-based, so it will work with any browser-based text-to-speech tools. Also, fonts can be adjusted in type and size, and non-text navigation elements can be adjusted in size. Math equation editing is available on assessment items and practice problems.

Imagine Learning can provide a NIMAS-compatible version of Illustrative Mathematics content. In addition, these files may be used to produce alternate formats as permitted under the law for students with disabilities.

