Third Grade Mathematics

The purpose of this document is to clarify what students should know and be able to do in Quarter 3.

The Competencies listed in the table below are developed from the Texas Essential Knowledge and Skills (TEKS) for that grade level. The chart defines which quarter the Competency is reported (Q1 = Grading Period 1, Q2 = Grading Period 2, etc.).
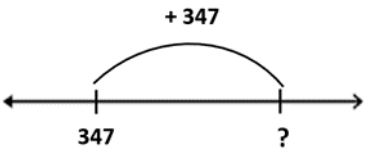
Teachers will report on the competencies using the Grading Progressions which are comprised of four proficiency levels (developing (DV), progressing (PG), and proficient (PF)) and defines the knowledge and skills students will master on their pathway to proficiency. The Grading Progressions for each Competency are below the yearlong outline of the Competencies. The Grading Progressions define what a student knows and is able to do related to that competency at the end of a unit or quarter. To see what success on each individual competency looks like in a particular unit, please see the Public Overview document for the course.

Students who receive a mark of "Proficient" meet the grade level expectation for that Competency.

TEKS	Competencies	Q 1	Q 2	Q 3	Q 4
3.1B, 3.1E, 3.1G	**C1— Problem Solving** The student analyzes word problems, utilizes a strategy, creates multiple representations, communicates mathematical thinking (oral and written), and determines an answer or solution.	X	X	X	X
3.1A, 3.1C, 3.1D, 3.1F, **3.2D**	**C2— Numeration** The student understands how to represent and order whole numbers within real-world context.	X			
3.1A, 3.1C, 3.1D, 3.1F, **3.5A, 3.5B, 3.4A, 3.4G, 3.4K**	**C3— Operations** The student develops concepts of expressions and equations and uses strategies for **whole number** computations within real-world context in order to solve problems.	X	X	X	
3.1A, 3.1C, 3.1D, 3.1F, **3.3D, 3.3H,** 3.6E	**C4— Fractions** The student understands how to represent and explain fractional units within real-world context.			X	X
3.1A, 3.1C, 3.1D, 3.1F, 3.6A	**C5— Geometry** The student analyzes attributes of two-dimensional shapes and three-dimensional solids within real-world context to develop generalizations about their properties.		X		
3.1A, 3.1C, 3.1D, 3.1F, **3.7B, 3.6C**	**C6— Measurement** The student selects appropriate units, strategies, and tools within real-world context to solve problems involving customary and metric measurements.		X	X	
3.1A, 3.1C, 3.1D, 3.1F, **3.8B**	**C7—Data Analysis** The student solves problems by collecting, organizing, displaying, and interpreting data within real-world context.				X

Learning Progression for Competency 1: Problem Solving

The student analyzes word problems by determining the important information, utilizing a strategy, creating multiple representations, communicating mathematical thinking (oral and written), and determining an answer.

Developing	Progressing	Proficient	Advanced
Identify information needed to solve the problem Represent the **values** of the problem using objects or pictures of objects	Create and use **teacher-selected** representation to organize or record and communicate mathematical thinking such as: • number sentence • various types of manipulatives • various types of pictorial representations • graphs	Create and use **self-selected multiple** representations to organize or record and communicate mathematical thinking such as: • number sentence • various types of manipulatives • various types of pictorial representations • graphs • explaining the process to solve	Evaluate the problem-solving process or justify the efficiency of using a specific strategy (e.g. When comparing numbers, it is faster to look at the value of each digit rather than building the numbers using base ten models.) Explain connections between representations and the context of the problem situation

	Use **teacher-selected strategies** to solve a problem such as:
	• count objects or picture of objects
	• number paths
	• number lines
	• ten frames
	• part- whole map (strip diagram)
	• fact strategies
	• graphs
	• estimation
	• one-to-one correspondence for comparison
		Use **self-selected strategies** to solve a problem such as:
		• count objects or picture of objects
		• number lines
		• strip diagrams
		• fact strategies
		• computations using non-standard algorithm
		   o place value strategy
		   o number sense strategy
		• graphs
			Sentence Stem: The ___ (explain representation)___ because the problem said ___(evidence)___ and that means ___(reasoning)___.
			
			(e.g. I drew a number line jumping to the right which makes the number larger because the problem said Jack and Jill had 347 each which means I will be joining these two numbers.

Explain how the objects or pictures of objects represent a number	Explain the process used to solve the problem	Justify an answer by comparing it to a predicted answer	

Learning Progression for Competency 3: Operations

The student develops concepts of expressions and equations and uses strategies for **whole number** computations within real-world context in order to solve problems.

Developing	Progressing	Proficient	Advanced

Represent and solve for a product using:
• equal groups of objects
• equal groups of pictures
• equal jumps on a number line
• repeated addition
• skip counting
• arrays
• area models
• comparison (e.g.3 x 24 is 3 times as much as 24)
• equation
 	
Determine the unknown whole number in a multiplication or division equation when the unknown is either a missing factor or product
 	
Represent and solve for a quotient using:
• equal groups of objects and pictures
  ○ group size unknown
  ○ number of groups unknown
• equal jumps on a number line
• relationship between multiplication and division
• equation
	Represent one-step problems involving multiplication and division using:
	• base 10 representations
	• strip diagrams
	• number lines
	• equations
	
	Solve one-step multiplication problems within 100 using:
	• pictorial models (number line, strip diagram, arrays, or area models)
	• recall of facts
	• partial Products expanded algorithm
	• standard algorithm
	
	Solve one step division problems using:
	• pictorial models (number line, strip diagram, arrays, or area models)
	• Recall of facts
	• Partial quotients
		Represent two-step problems involving multiplication and division using:
		• base 10 models
		• strip diagrams
		• number lines
		• equations
		
		Estimate solutions for problems using compatible numbers
		
		Solve two-step problems involving multiplication and division using various strategies such as:
		• base 10 representations
		• area models
		• fact strategies
		• partial products/partial quotients
		• expanded or standard algorithm
		
		Justify an answer by comparing it to an estimated answer
			Create problem situations from one and two step pictorial models, number lines, or equations involving addition and subtraction
			
			Justify the efficiency/effectiveness of the chosen strategy or representation

Learning Progression for Competency 4: Fractions
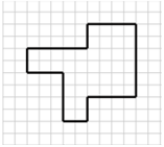The student understands how to represent and explain fractional units within real-world context.

Compose and Decompose

Developing	Progressing	Proficient	Advanced
Solve problems involving partitioning an object or a set of objects among two or more recipients Write a fraction when given • concrete models • pictorial models Identify a fraction given a specified point on a number line.	Partition two shapes in different ways to represent the same part of a whole. Represent fractions as part of a whole using pictorial models including: • fraction strips • number lines • fraction circles Represent fractions as part of a set of objects using models or pictures of models such as: • square tiles • centimeter cubes • two color counters	Decompose a fraction as unit fractions when given a • model • fraction Compose a fraction when given • models that represent a sum of unit fractions • number sentence as a sum of unit fractions. Describe how many unit fractions it takes to make one whole	Create real-world situations that require partitioning objects or a set of objects among two or more recipients using pictorial representations of fractions Identify the location of a given fraction on an open number line **(0 and 1 are not marked)** labeled with one fraction.

Learning Progression for Competency 6: Measurement

The student selects appropriate units, strategies, and tools within real-world context to solve problems involving customary and metric measurements.

Perimeter, Area, Liquid Capacity, and Weight

Developing	Progressing	Proficient	Advanced
Describe types of measurements and how they are measured including: • Perimeter • Area • Liquid volume • Weight Describe the difference and similarities among various types of measurements	Determine the perimeter of polygons when given • all the side lengths • the figure on grid paper Use pattern squares and grid paper to • build a rectangle with a given area • determine the area of a rectangle with given side lengths Determine the area of rectangles with whole number side lengths in problems using number of rows times the number of unit squares in each row Determine when it is appropriate to use measurements of liquid ounces or ounces that measure weight	Determine the missing side length of a polygon when given the perimeter and remaining side lengths Decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area e.g. Determine liquid volume or weight using units and tools	Create real-world situations that require solving problems for different types of measurement: • elapsed time • perimeter • area • volume • weight Develop a variety of polygons with the same area and different perimeters and/or same perimeters with different areas.