

Second Grade Mathematics

The purpose of this document is to clarify what students should know and be able to do in Quarter 4.

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.).

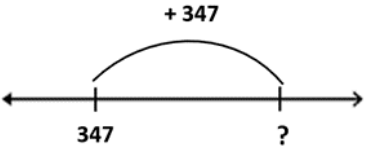
Teachers will report on the competencies using the Grading Progressions which are comprised of four proficiency levels (developing (DV), progressing (PG), and proficient (PF)) and defines the knowledge and skills students will master on their pathway to proficiency. The Grading Progressions for each 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
2.1B, 2.1E, 2.1G	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
2.1A, 2.1C, 2.1D, 2.1F, 2.2A, 2.2D, 2.3B	C2— Numeration The student understands how to represent and compare whole numbers within real-world situations. The student understands how to represent fractional units within real-world context.	X		X	X
2.1A, 2.1C, 2.1D, 2.1F, 2.4C, 2.5A, 2.7C	C3— Operations The student develops and uses strategies for whole number addition and subtraction within real-world context in order to solve problems.	X	X	X	
2.1A, 2.1C, 2.1D, 2.1F, 2.8B, 2.8C	C4— Geometry The student analyzes attributes of two-dimensional shapes and three-dimensional solids within real-world contexts to develop generalizations about their properties.				X
2.1A, 2.1C, 2.1D, 2.1F, 2.9D, 2.9G	C5— Measurement The student selects and uses units to describe length, area, and time within real-world contexts.			X	X
2.1A, 2.1C, 2.1D, 2.1F, 2.10C	C6—Data Analysis The student organizes data to make it useful for interpreting information and solving problems within real-world contexts.		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
<p>Identify information needed to solve the problem</p> <p>Represent the values of the problem using objects or pictures of objects</p> <p>Explain how the objects or pictures of objects represent a number</p>	<p>Create and use teacher-selected representation to organize or record and communicate mathematical thinking such as:</p> <ul style="list-style-type: none"> • number sentence • various types of manipulatives • various types of pictorial representations • graphs <p>Use teacher-selected strategies to solve a problem such as:</p> <ul style="list-style-type: none"> • count objects or picture of objects • number lines • strip diagrams • fact strategies • computations using non-standard algorithm <ul style="list-style-type: none"> ○ place value strategy ○ number sense strategy • graphs <p>Explain the process used to solve the problem</p>	<p>Create and use self-selected multiple representations to organize or record and communicate mathematical thinking such as:</p> <ul style="list-style-type: none"> • number sentence • various types of manipulatives • various types of pictorial representations • graphs • explaining the process to solve <p>Use self-selected strategies to solve a problem such as:</p> <ul style="list-style-type: none"> • count objects or picture of objects • number lines • strip diagrams • fact strategies • computations using non-standard algorithm <ul style="list-style-type: none"> ○ place value strategy ○ number sense strategy • graphs <p>Justify an answer by comparing it to a predicted answer</p>	<p>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.)</p> <p>Explain connections between representations and the context of the problem situation</p> <p>Sentence Stem: The __ (explain representation) __ because the problem said __ (evidence) __ and that means __ (reasoning) __.</p> <p>(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.</p> 

Learning Progression for Competency 2: Numeration

The student understands how to represent and compare whole numbers within real-world situations. The student understands how to represent fractional units within real-world context.

Fractions

Developing	Progressing	Proficient	Advanced
<p>Identify examples and non-examples of</p> <ul style="list-style-type: none"> • halves • fourths • eights <p>Explain which are examples and non-examples</p>	<p>Use concrete models to count fractional parts up to one whole using words (e.g. one fourth, two fourths, three fourths, four fourths)</p> <p>Identify how many parts it takes to equal one whole (e.g. four fourths equals one whole)</p> <p>Partition one- and two-dimensional objects (e.g. strips, lines, regular polygon, circles, etc..) into equal parts and name the parts using words</p> <ul style="list-style-type: none"> • halves (e.g. one half) • fourths (e.g. three fourths) • eights (e.g. two eighths) <p>Recognizes how many parts it takes to equal one whole</p>	<p>Use concrete models to count fractional parts beyond one whole using words (e.g. one fourth, two fourths, three fourths, four fourths, five fourths or one and one fourth)</p> <p>Identify how many parts it takes to equal one whole when the parts totaled are beyond one whole</p> <p>Explain the relationship between the amount and the size of the fractional parts in a contextual situation (e.g. Juan asked for one half of the teacher’s block of clay. Callie asked for one eight of the clay. Who is receiving the greater amount to of clay? Why?)</p>	<p>Create problem situations in which objects are partitioned into equal parts</p>

Learning Progression for Competency 3: Operations

The student develops and uses strategies for whole number addition and subtraction within real-world context in order to solve problems.

(Operations – Numbers up to 1,000)

Developing	Progressing	Proficient	Advanced
<p>Identify information to solve word problems</p> <p>Represent the values in the problem using base ten models</p> <p>Add two values that do not involve regrouping using base 10 models and place value charts</p> <p>Subtract two values that do not involve regrouping using base 10 models and place value charts</p>	<p>Add two or more numbers using variety of strategies such as:</p> <ul style="list-style-type: none"> • base ten models with place value chart • closed number lines with values labeled • fact strategies • place value strategies <p>Represent one-step addition or subtraction word problems using:</p> <ul style="list-style-type: none"> • base ten blocks • strip diagrams • number lines • number sentence <p>Solve one-step problems involving addition or subtraction that include regrouping using variety of strategies:</p> <ul style="list-style-type: none"> • base ten models with place value chart • closed number lines with values labeled • fact strategies • place value strategies <p>Explains strategies and algorithms for addition and subtraction using place value understanding</p>	<p>Solve one-step problems involving addition and subtraction that include regrouping using variety of strategies such as:</p> <ul style="list-style-type: none"> • base ten models with place value chart • closed number lines with values labeled • fact strategies • place value strategies <p>Represent multi-step addition and subtraction word problems using:</p> <ul style="list-style-type: none"> • base ten blocks • strip diagrams • number lines • number sentence <p>Solve multi-step addition and subtraction word problems using:</p> <ul style="list-style-type: none"> • base ten blocks with place value charts • fact strategies • place value strategies <p>Uses estimation strategies to justify solutions.</p>	<p>Justify the efficiency/effectiveness of the chosen strategy or representation as compared to other methods or strategies</p> <p>(e.g. Using a number line to solve the problem $137 - 22$ is more efficient than counting objects. When counting objects, I would need to count out 137 blocks, take away 22 blocks, and then count the remaining blocks. With a number line, I would mark 137, jump 10 less, jump 10 less again, then jump 2 less.)</p>

Learning Progression for Competency 4: Geometry

The student analyzes attributes of two-dimensional shapes and three-dimensional solids within real-world contexts to develop generalizations about their properties.

Developing	Progressing	Proficient	Advanced
<p>Describe the attributes of two-dimensional shapes</p> <ul style="list-style-type: none"> • number of vertices • number of sides <p>Decompose two-dimensional shapes and identify the resulting geometric shapes (e.g. cutting a square in half results in two rectangles)</p>	<p>Create two-dimensional shapes when given attributes (e.g. compose a shape with 6 sides and 6 vertices)</p> <p>Sort and classify polygons with 12 or fewer sides according to attributes</p> <ul style="list-style-type: none"> • number of vertices • number of sides <p>Explain how shapes were sorted or classified</p>	<p>Identify three-dimensional figures when given attributes (e.g. compose a figure with 6 sides and 6 vertices using 2 shapes) including</p> <ul style="list-style-type: none"> • spheres • cones • cylinders • rectangular prisms • triangular prisms • cubes (special rectangular prisms) • pyramid <p>Sort and classify three-dimensional figures based on their attributes</p> <ul style="list-style-type: none"> • number of vertices • number of edges • number of faces • types of faces (two-dimensional shapes) <p>Explain how figures were sorted or classified</p>	<p>Research various types of prisms other than rectangular and triangular prisms and determine attributes that classify figures as a prism</p> <p>Identify patterns found when comparing various three-dimensional prisms</p> <p>(e.g. What is the pattern found when comparing amounts of edges or vertices for triangular, rectangular, and pentagonal prisms or what is the relationship between the face of prism and number of edges and vertices)</p>

Learning Progression for Competency 5: Measurement

The student selects and uses units to describe length, area, and time within real-world contexts.

Only Area

Developing	Progressing	Proficient	Advanced
<p>Read and write time to the nearest one-minute increment using a digital clock</p> <p>Estimate and find the length of an object or picture of an object using concrete models for standard units of length (e.g. centimeter cubes and inch tiles)</p> <p>Explain if fewer or more concrete units are needed to measure the length of an object based on the size of the concrete unit (<i>e.g. when measuring the size of a pencil, more cm cubes will be needed than inch tiles</i>)</p>	<p>Read and write time to the quarter hour and every five minutes using analog and digital clocks</p> <p>Explain how units of measure are related to a number line</p> <ul style="list-style-type: none"> • time • length <p>Determine the length of an object or picture of an object to the nearest marked unit using a measure tool (e.g. rulers, measuring tape)</p> <ul style="list-style-type: none"> • nearest inch • nearest centimeter • nearest foot • nearest meter 	<p>Read and write time to the nearest one-minute increment using an analog clock (write time-using numbers in the form of a digital clock)</p> <p>Explain how to tell time with an analog clock</p> <p>Identify the difference between events that occur in the a.m. and the p.m.</p> <p>Estimate a solution to a problem involving length</p> <p>Determine a solution to a problem involving length using tools (e.g. inch rulers, centimeter rulers, measuring tape) and identify the units</p> <p>Use concrete models to find the area of a rectangle and identify the units</p>	<p>Create and solve real-world problems that require solving for time, length, and area</p>