First Grade Mathematics

The purpose of this document is to clarify what students should know and be able to do each quarter (Q).

TEKS	Competencies	Q 1	Q 2	Q 3	Q 4
1.1B, 1.1E, 1.1G	**C1 — 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.	X	X	X	X
1.1A, 1.1C, 1.1D, 1.1F, **1.2B, 1.2F, 1.2G, 1.4C**	**C2 — Numeration** The student understands how to represent and compare numbers within real-world context.	X	X	X	
1.1A, 1.1C, 1.1D, 1.1F, **1.5D, 1.3B, 1.5F**	**C3 — Operations** The student develops an understanding of addition and subtraction within real-world context in order to solve problems.		X	X	X
1.1A, 1.1C, 1.1D, 1.1F, **1.6B**	**C4 — Geometry** The student analyzes attributes of two-dimensional shapes and three-dimensional solids within real-world context to develop generalizations about their properties**.**			X	
1.1A, 1.1C, 1.1D, 1.1F, **1.7C,** 1.7E	**C5 — Measurement** The student selects and uses units to describe length and time within real-world context.				X
1.1A, 1.1C, 1.1D, 1.1F, **1.8B**	**C6—Data Analysis** The student organizes data to make it useful for interpreting information and solving problems 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. **1.1B, 1.1E, 1.1G**

Developing	Progressing	Proficient
Identifies mathematical information in the word problem Represents the values in the problem	Identifies information needed to solve the problem Represents the actions of the problem Solves the word problem Explains the process used to solve the word problem	Creates and uses multiple representations to organize, record, and communicate mathematical thinking Justifies the answer by explaining the process used to solve the word problem **and** by comparing the actual answer and the predicted answer

Success Criteria for Proficient in Problem Solving:
The student can…

- predict a reasonable answer
  - using a representation
    (e.g. "I am joining four counters and three counters so I know my answer will be greater than four.")
  - decompose or compose numbers with objects and pictures
    (e.g. "I am starting with the number seven, then decompose it, I know my answer(s) will be less than seven.")
  - connecting the context or the action of the word problem
    (e.g. "I know my answer will be more than five because in the word problem, I am putting five and three together.")
- use a strategy to solve a problem such as;
  - count objects
  - count pictures of objects
  - counting on
  - shapes and tally marks
  - number paths and number lines
  - ten frames and twenty frames
  - number bonds
  - one-to-one correspondence for comparisons
  - place value strategy for comparisons

- build a representation of the word problem using objects
- draw a representation of the word problem
    - picture of objects
    - shapes or tally marks
    - ten frames
    - part-part whole map (strip diagrams)
    - number paths
    - graphs
- write a number sentence

- justify the answer by explaining the process used to solve the word problem (may be a list of steps the student used to solve the word problem)
- justify the answer by comparing the actual answer and the predicted answer

Learning Progression for Competency 2: Numeration

The student understands how to represent and compare numbers within real-world context.

Composing and Decomposing – Q1: numbers up to 99, Q3: numbers up to 120

Comparing Numbers – Q1: numbers up to 99, Q3: numbers up to 100

Ordering Numbers – Q1: not assessed, Q3: numbers up to 120

Developing	Progressing	Proficient
Recognizes instantly the quantity of structured arrangements Uses objects, pictures, and standard from to represent numbers	Uses expanded form to represent numbers Generates a number that is greater than or less than a given whole number Skip counts by twos, five, and tens to determine the total numbers of objects in a set	Composes and decomposes numbers using objects and pictorial representations in more than one way as so many hundreds, tens, and ones Represents the comparison of two numbers using the symbols >, <, = Orders whole numbers using place value and open number lines Uses relationships to count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and dimes

Success Criteria for Proficient in Numeration:

The student can…

- compose and decompose numbers in more than one way as so many hundreds, so many tens, and so many ones
  - objects
  - pictorial representations
- explain the process of decomposing and composing numbers in context of a real-world situation
- use symbols to represent the comparison of two numbers in a real-world context
- order whole numbers using place value and open number lines in a real-world context
- skip count to determine the set value of coins
  - pennies by twos
  - nickels by fives
  - dimes by tens
- count a collection of coins using skip counting strategy (not quarters)
  - same coins
  - different coins

Learning Progression for Competency 3: Operations

The student develops an understanding of addition and subtraction within real-world context in order to solve problems.

Composing and Decomposing – numbers up to 10

Addition and Subtraction – numbers within 20

Developing	Progressing	Proficient
Composes with two addends with and without concrete objects Determines the actions of the word problem Applies basic facts strategies to add and subtract Explains the equal sign represents a relationship	Composes with more than two addends with and without concrete objects Decomposes a number Represents and solves word problems with results unknown involving • addition • subtraction • comparing sets	Represents and solves word problems where unknowns may be any one of the terms involving • addition • subtraction • comparing sets Explains the strategies used to solve problems Generates and solves problem situations when given a number sentence

Success Criteria for Proficient in Operations:

The student can…

- represent word problems involving addition with an unknown as any term using:
  - objects
  - pictorial representations
  - number sentence
- represent word problems involving subtraction with an unknown as any term using:
  - objects
  - pictorial representations
  - number sentence
- represent word problems involving comparing sets with an unknown as any term using:
  - objects
  - pictorial representations
- solve word problems involving addition with an unknown as any term using:
  - objects
  - pictorial representations
- solve word problems involving subtraction with an unknown as any term using:

  - objects
  - pictorial representations
- solve word problems involving comparing sets with an unknown as any term using:
  - objects
  - pictorial representations

Learning Progression for Competency 4: Geometry

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

Developing	Progressing	Proficient
Identifies two-dimensional shapes using formal geometric language Describes the attributes of two dimensional shapes Distinguishes between attributes that define and do not define a two-dimensional shape Creates two-dimensional figures	Identifies example and non-examples of halves and fourths Classifies and sorts regular and irregular two-dimensional shapes based on attributes Identifies three-dimensional solids using formal geometric language Composes two-dimensional shapes by joining two, three, or four figures to produce a target shape	Describes the attributes of three-dimensional figures Distinguishes between attributes that define and do not define a three-dimensional figure Partitions two-dimensional shapes into two and four fair shares or equal parts and describe the parts using mathematical language

Success Criteria for Proficient in Geometry:

The student can…

- describe the attributes of three-dimensional figures
  (e.g. of three-dimensional figures: spheres, cones, cylinders, rectangular prisms, cubes, and triangular prisms)
  - vertex
  - edge
  - number of faces
  - types of faces (rectangular, circular, etc.)
- distinguish between attributes that define and do not define a three-dimensional figure
- partition two-dimensional shapes into two fair shares or equal parts and describe the parts using words such as
  (e.g. of shapes to partition: circle or rectangle)
  - halves
  - fourths
  - half of
  - quarters

Learning Progression for Competency 5: Measurement

The student selects and uses units to describe length and time within real-world context.

Developing	Progressing	Proficient
Identifies analog and digital clocks and their components. Uses a tool (e.g. string, ribbon, paper etc.) to show the length of another object to model continuous nature of length	Tells time to the hour and half-hour on a digital clock. Uses same size non-standard units to measure the length of objects (e.g. paper clips, crayons, linking cubes, etc.)	Tells time to the hour and half hour on an analog. Estimate whether time is closer to the hour or the half-hour using analog clock Measures the same object or distance with units of two different lengths and describes how and why the measurements differ

Success Criteria for Proficient in Measurement:

The student can…

- tell time using an analog clock
  - to the hour
  - to the half-hour
- estimate whether time is closer to the hour or half-hour using an analog clock (e.g. If the clock reads 1:27, is that time closer to 1:00 or to 1:30)
- measure the same object or distance with units of two different lengths
  - select the measuring tool
  - describe the length to the nearest whole unit using a number and a unit
  - describe how and why the measurements differ

Learning Progression for Competency 6: Data Analysis

The student organizes data to make it useful for interpreting information and solving problems within real-world context. Q4

Developing	Progressing	Proficient
Demonstrates an understanding of how to use tally marks	Collects, sorts, and organizes data up to three categories in charts (using tally marks) Generates, answers questions, and draws conclusions from charts	Collects, sorts, and organizes data to create picture graphs and bar graphs Generates and answers questions, and draws conclusions from picture graphs and bar graphs

Success Criteria for Proficient in Measurement:

The student can…

- collect, sort, and organize data with three categories using tally marks and charts
  - determine a label for each category
  - describe similarities and differences to justify groupings
- use data to create
  - picture graphs
  - bar graphs
- generate and answer questions from picture graphs and bar graphs
- draw conclusions from picture graphs and bar graphs
  - use comparative language to describe different sets of data within the same graph
  - summarize the data to draw a conclusion from the data within the graph