# First 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 three 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.

| Competencies | Q 1 | Q 2 | Q 3 | Q 4 |
|---|---|---|---|---|
| **C1 — Problem Solving**<br>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 |
| **C2 — Numeration**<br>The student understands how to represent and compare numbers within real-world context. | X | X | X | |
| **C3 — Operations**<br>The student develops an understanding of addition and subtraction within real-world context in order to solve problems. | | X | | X |
| **C4 — Geometry**<br>The student analyzes attributes of two-dimensional shapes and three-dimensional solids within real-world context to develop generalizations about their properties. | | X | X | |
| **C5 — Measurement**<br>The student selects and uses units to describe length and time within real-world context. | | | | X |
| **C6 — Data Analysis**<br>The student organizes data to make it useful for interpreting information and solving problems within real-world context. | | | X | 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 |
|---|---|---|
| Identify information needed to solve the problem<br><br>Represent the **values** of the problem using objects or pictures of objects | Create and use a **teacher-selected** representation to organize or record and communicate mathematical thinking such as:<br>• number sentence<br>• various types of manipulatives<br>• various types of pictorial representations<br>• graphs<br><br>Use **teacher-selected strategies** to solve a problem such as:<br>• count objects or picture of objects<br>• number paths<br>• number lines<br>• ten frames<br>• part- whole map (strip diagram)<br>• fact strategies<br>• graphs<br>• estimation<br>• one-to-one correspondence for comparison | Create and use **self-selected multiple** representations to organize or record and communicate mathematical thinking such as:<br>• number sentence<br>• various types of manipulatives<br>• various types of pictorial representations<br>• graphs<br>• explaining the process to solve<br><br>Use **self-selected strategies** to solve a problem such as:<br>• count objects or picture of objects<br>• number path<br>• number lines<br>• ten frames<br>• part- whole map (strip diagram)<br>• fact strategies<br>• graphs<br>• estimation<br>• one-to-one correspondence for comparisons |
| 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 an understanding of addition and subtraction within real-world context in order to solve problems.

**Compose and Decompose – Numbers to 10; Add and Subtract – Numbers to 20**

| Developing | Progressing | Proficient |
|---|---|---|
| Use two addends to compose a number<br>• with concrete objects<br>• without concrete objects<br><br>Decompose a number<br>• with concrete<br>• without concrete objects<br><br>Determines the actions of the word problem<br>• joining<br>• separating<br>• comparing sets<br><br>Explain how the equal sign represents a relationship of equality | Use more than two addends to compose a number<br>• with concrete objects<br>• without concrete objects<br><br>Represent **results unknown** word problems involving joining, separating, and comparing sets using:<br>• objects<br>• pictorial representations<br><br>Solve word problems with **results unknown** involving joining, separating, and comparing sets using:<br>• objects<br>• pictorial representations<br>• fact strategies (e.g. making 10, doubles, compensation) | Represent word problems involving **joining, separating, and comparing sets** where **unknowns may be any one of the unknown terms** using:<br>• objects<br>• pictorial representations<br>• number sentences<br><br>Solve word problems involving **joining, separating, and comparing sets** where **unknowns may be any one of the unknown terms** using:<br>• objects<br>• pictorial representations<br>• fact strategies (e.g. making 10, doubles, compensation)<br><br>Explain the strategies used to solve problems using:<br>• spoken words<br>• objects<br>• pictorial models<br>• number sentences<br><br>Generate and solve problem situations when given a number sentence |

**Learning Progression for Competency 5: Measurement**

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

| Developing | Progressing | Proficient |
|---|---|---|
| Identify analog and digital clocks and their components. | Tell time to the hour using the words o'clock on a digital clock<br><br>Tell time to the half-hour on a digital clock | Tell time to the hour using the words o'clock on an analog clock<br><br>Tell time to the half-hour on an analog clock<br><br>Estimate whether time is closer to the hour, the half-hour, or the next hour using both a digital and analog clock (e.g. 5:10 is closer to 5:00 than 5:30) |
| Use a tool (e.g. string, ribbon, paper, etc.) to show the length of an object or a distance to model the continuous nature of length<br><br>Measure with units (e.g. paperclips, linking cubes)<br>• without gaps<br>• without overlapping units<br>• reaching one end of the object to the other end | Estimate the length of an object or a distance before measuring (e.g. paperclips, linking cubes etc.)<br><br>Use same size non-standard units (e.g. paper clips, crayons, linking cubes, etc.) to measure the length of objects and name the number and name of the unit | Measure the same object or distance with two units of different sizes<br>• compare units of different sizes<br>• describe why the measurements differ<br>• name the number and name of unit |

**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.

| Developing | Progressing | Proficient |
|---|---|---|
| Sort data in up to three categories (when given data)<br><br>Describe the information when given picture graphs or bar graphs (e.g. The graph is about | Begin a data collection process by asking a question (e.g. What types of pets do the students in my classroom have at home?) | Use self-collected data to create a bar graph<br>• vertical<br>• horizontal |

| | | |
|---|---|---|
| different types of animals. There are animals that travel on land, in water, and in the sky.) | Sort self-collected data in up to three categories and organize using t-charts and tally marks<br><br>Describe similarities and differences to justify sorting or categories<br><br>Use self-collected data to create a picture graph | Analyze data and draw conclusions from graphs related to the original question asked that begin the data collection such as:<br>• identify the category with the most or least number of items<br>• compare different categories of data using words like more than, fewer than, and equal to<br>• write and solve one-step problems related to the graph<br>  ○ addition<br>  ○ subtraction |