2nd Grade Math Instructional Plan

GRAPEVINE COLLEYVILLE INDEPENDENT SCHOOL DISTRICT

SECOND GRADE MATH INSTRUCTIONAL PLAN

In Grade 2, instructional time will be focused on four main areas: (1) understanding and applying place value concepts and properties of operations; (2) developing strategies to add and subtract whole numbers; (3) building a foundation for multiplication and division; and (4) analyzing relationships in numbers, fractions, geometry, and measurement.

TEXAS ESSENTIAL KNOWLEDGE AND SKILLS FOR MATHEMATICS

ESTIMATED TIMEFRAME	UNIT SUMMARY	TEKS
On Going	**Process Standards** The process standards describe ways in which students are expected to engage in the content. The placement of the process standards at the beginning of the knowledge and skills listed for each grade and course is intentional. The process standards weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively in daily life. The process standards are integrated at every grade level and course. When possible, students will apply mathematics to problems arising in everyday life, society, and the workplace. Students will use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Students will select appropriate tools such as real objects, manipulatives, algorithms, paper and pencil, and technology and techniques such as mental math, estimation, number sense, and generalization and abstraction to solve problems. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, computer programs, and language. Students will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and communicate mathematical ideas. Students will display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.	2.1A, 2.1B, 2.1C, 2.1D, 2.1E, 2.1F, 2.1G
17 Days	**Topic 1: Add and Subtract within 20** Students will use strategies to achieve fluency with addition and subtraction within 20. Strategies include doubles and near doubles, make a 10, count on and count back, and think addition to subtract. The goal is for students to recall basic facts to add and subtract, quickly and accurately, using a strategy that works well for them. In this topic, students will also create and solve word problems given number sentences or data.	2.4A, 2.4C, 2.4D, 2.7C
15 Days	**Topic 2: Add within 100 Using Strategies** Students will develop fluency to add within 100 using strategies that employ a hundred chart, a number line, breaking numbers apart, and compensation. Understanding of place value, properties of operations, the partial-sums method, and mental math are also important in this topic. Achieving fluency with addition means that students will be able to add efficiently and accurately. The goal is for them to choose strategies that make sense and are reliable.	2.4B, 2.4C, 2.7B, 2.7C

15 Days	**Topic 3: Subtract within 100 Using Strategies** Students will develop fluency in subtraction within 100 using strategies and tools that include a hundred chart, an open number line, breaking numbers apart, and compensation. They will use their understanding of place value, properties of operations, mental math, partial differences, and the relationship between addition and subtraction to fluently subtract 2-digit numbers. Achieving fluency with subtraction means that students can subtract efficiently and accurately using a chosen strategy.	2.4B, 2.4C, 27B, 2.7C
11 Days	**Topic 4: Solve More Problems Using Number Strategies** Students will represent and solve one- and two-step word problems that involve addition and subtraction situations, including comparison problems. They will represent the relationships among the numbers in word problems using drawings, diagrams, and equations with a symbol used for the unknown number. Students will also add and subtract within 100 to find the unknown number and write number stories for equations and then solve those number story problems using addition and subtraction.	2.4B, 2.4C, 2.4D, 2.7C
11 Days	**Topic 5: Work with Equal Groups** Students will determine whether a number is even or odd and explore situations that involve equal groups of objects. Students add equal groups of objects to find a total, which lays the foundation for later work with multiplication. Students subtract equal groups, and separate objects into equal groups, which lays the foundation for later work with division.	2.5B, 2.6A, 2.6B, 2.7A
9.5 Days	**Topic 6: Work with Money and Time** Students will identify and count coins, write money amounts with the cent symbol and the dollar sign, solve word problems about money. They will also extend their knowledge of telling time to the nearest minute using a.m. and p.m., and tell time before and after the hour.	2.5A, 2.5B, 2.9G
15 Days	**Topic 7: Measurement** Students will use appropriate tools to estimate, measure, and compare length using customary units (inches, feet, and yards) and metric units (centimeters and meters). This topic also addresses the use of addition and subtraction to solve word problems involving length. Students will explore the inverse relationship between the size of a unit and the number of units needed to measure a given object, as well as use number lines to represent sums and differences within 100. Finally, they will be introduced to the concept of area and square units.	2.7C, 2.10A, 2.10B, 2.10C, 2.10D
9 Days	**Topic 8: Represent and Interpret Data** Students will read, interpret, and organize data in bar graphs and pictographs. Students will also practice solving one-step word problems that require addition or subtraction by using data shown in the graphs. Finally, they will draw conclusions and make predictions based on the information shown in the graphs, helping them develop critical thinking and data analysis skills.	2.10A, 2.10B, 2.10C, 2.10D
8 Days	**Topic 9: Equal Parts and Fractions** Students will partition shapes into equal parts and name those parts as halves, fourths, or eighths. They will identify halves, fourths, and eighths, and see when a shape is not equally divided into these fractions. They will explore and be able to justify why the more equal parts a whole is divided into, the smaller each part becomes, and the fewer equal parts there are, the larger each part is. Using concrete models and drawings, students will count fractional parts that go beyond one whole, while also recognizing how many parts it takes to make a whole.	2.3A, 2.3B, 2.3C, 2.3D

12 Days	**Topic 10: Geometry** Students will name, sort, and create two- and three-dimensional shapes. They will continue to identify and describe attributes of shapes. When working with polygons, students will learn new names based on the number of sides and vertices. They will also explore how to combine 2-D and 3-D shapes to create new shapes, and how to break them apart to name the resulting geometric parts.	2.8A, 2.8B, 2.8C, 2.8D, 2.8E
14 Days	**Topic 11: Explore Numbers to 1,200** Students will expand their understanding of place value for numbers up to 1,200. They will name, read, write, and represent 3- and 4-digit numbers in various ways. Throughout this topic, students will use place-value blocks to model, and place-value charts to organize, the digits of a number. They will also use number lines to identify and plot points and to compare numbers. This understanding of place value will help students add and subtract larger numbers in the next topic.	2.2A, 2.2B, 2.2C, 2.2D, 2.2E, 2.2F, 2.7B
19 Days	**Topic 12: Add and Subtract within 1,000 Using Models and Number Strategies** Students will extend their understanding of addition and subtraction to 3-digit numbers using models and strategies. They will explain why addition and subtraction strategies based on place value work by using drawings, words, and organized steps. Students will also create and solve one- and multi-step word problems.	2.2A, 2.4C, 2.4D, 2.7B
8 Days	**Topic 13: Personal Financial Literacy** Students will learn how saving money can accumulate over time, the difference between saving and spending, and how to make responsible financial decisions. They will also explore concepts like borrowing, lending, and the importance of evaluating costs and benefits when managing money. Students will explore the difference between producers (those who make goods) and consumers (those who buy goods), and they'll calculate the cost of producing items. They will also distinguish between deposits and withdrawals, building a foundation for everyday banking activities.	2.4A, 2.4B, 2.4C, 2.5A, 2.11A, 2.11B, 2.11C, 2.11D, 2.11E, 2.11F

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1 Week	**Unit 1: Launch into Second Grade** The Habits of a Mathematician will be explored as students re-engage with the following skills: comparing numbers by matching greater than or less than; identifying and counting triangles; analyzing patterns; counting forwards and backwards by 2, 10, or 100; subtracting within 20 and using part-whole thinking; identifying coins by name and value	2.1A, 2.1B, 2.1C, 2.1D, 2.1E, 2.1F, 2.1G
6 Weeks	**Unit 2: Place Value to 1200** Grade 2 begins with the **Represent Numbers to 1,200** scope, which significantly extends the numerical horizon for students and challenges them to compose and decompose numbers in various ways. This scope is pivotal as it lays the groundwork for understanding place value and the base-ten system that is essential for developing flexible, accurate, and efficient strategies for addition and subtraction. In the **Numbers on a Number Line** scope, students apply their understanding of place value. This scope introduces students to the spatial representation of numbers and enhances their ability to visualize numerical relationships and the relative magnitude of numbers. Students learn	2.2A, 2.2B, 2.2C, 2.2D, 2.2E, 2.2F, 2.7A, 2.7B

	to locate and identify numbers within a given range and reason about the distance between the numbers, which supports students in using number lines for computational strategies later in the year. In the **Compare and Order Numbers** scope, students continue to reason about the relative magnitude of numbers and apply place value understanding. This scope deepens students' understanding of numerical relationships and encourages them to use comparative language and symbols, laying a foundation for algebraic thinking.	
2 Weeks	**Unit 3: Fractions** In the **Fractions** scope, students deepen their understanding of quantities and units as they name fractional parts using words and count fractional parts beyond one whole. This scope introduces students to the concept of parts of a whole, a fundamental aspect of mathematics. By partitioning objects into equal parts and exploring the relationship between the number of parts and their size, students begin to understand fractions conceptually and build their ability to analyze and describe mathematical relationships.	2.3A, 2.3B, 2.3C, 2.3D
5 Weeks	**Unit 4: Add and Subtract Two-Digit Numbers** In the **Add and Subtract Two-Digit Numbers** scope, students apply their knowledge of place value and number lines. This scope emphasizes strategies based on place value and the properties of operations while challenging students to apply their understanding in new contexts. Students are given time to develop proficiency with these strategies using two-digit numbers before extending this knowledge to three-digit numbers later in the year. They continue using their conceptual understanding of addition and subtraction throughout the year as they pursue automation with basic facts and develop their ability to calculate mentally.	2.4A, 2.4B
1 Week	**Unit 5: Money** The **Money** scope focuses on the practical application of math as students identify the value of a collection of coins up to one dollar. Students use strategies such as ordering by value, addition, and skip counting. In first grade, students were introduced to skip counting by twos, fives, and tens.	2.5A, 2.5B
3 Weeks	**Unit 6: Data Analysis** The **Data Analysis** scope transitions to representing and interpreting data using pictographs and bar graphs. This scope incorporates a collection of skills, including number comparisons, addition and subtraction, multiplication, problem solving, and analysis of relationships. Students apply their knowledge of skip counting as they represent data using pictographs and bar graphs with intervals greater than 1. They apply the other previously learned skills as they compare quantities within the data, add and subtract to solve problems related to the data, and analyze relationships to draw conclusions and make predictions.	2.10A, 2.10B, 2.10C, 2.10D
8 Weeks	**Unit 7: Geometry, Area, and Linear Measurement** The **Two-Dimensional Shapes** scope transitions students into geometric thinking and spatial reasoning as they classify, create, compose, and decompose shapes while analyzing their attributes. This scope supports students' ability to recognize and describe relationships. The **Three-Dimensional Solids** scope extends this knowledge as students explore the attributes of various solids to sort and classify them, an essential component of geometric reasoning. Students then apply their understanding to compose three-dimensional solids given a set of attributes. They build academic vocabulary as they describe their work with geometric shapes and solids using precise mathematical language. Then, the students explore concepts of measurement, including length and	2.8A, 2.8B, 2.8C, 2.8D, 2.8E 2.9A, 2.9B, 2.9C, 2.9D, 2.9E, 2.9F

	area, to further apply computational skills and strategies as well as analysis of relationships. The **Length** scope focuses on teaching students to accurately measure objects using standard units of length. This scope extends what students know about number lines in a practical context. Students must analyze the relative sizes of units to describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object. This scope also provides an opportunity to practice addition and subtraction skills as students solve problems related to length. Students transition from linear measurement to measuring space in the **Area** scope that follows. This scope introduces students to area as a measure of space within a shape as they use concrete models to find and describe the area of rectangles. Students connect their work with arrays and multiplication to finding the area of a rectangle, bridging their understanding of geometry and numerical operations.	
2 Weeks	**Unit 8: Time to the Nearest Minute** Students further apply their understanding of skip counting strategies in the **Time** scope as they read and write time to the nearest minute. Students analyze the relationship between a.m. and p.m. to understand how time is communicated. Students learn to tell time and appreciate its significance in daily life.	2.9G
4 Weeks	**Unit 9: Problem Solving with Addition and Subtraction (Three-Digit)** By this point, students have had multiple opportunities to practice and apply their addition and subtraction skills from the beginning of the year. In the **Addition and Subtraction Problem Solving** scope, students expand their skill set to add and subtract within 1,000 to solve one-step and multistep problems. This scope emphasizes the use of concrete and pictorial models to represent and solve problems, reinforcing students' conceptual understanding of these operations and their algebraic reasoning. The **Add and Subtract Three-Digit Numbers** scope builds on previous scopes by challenging students to add and subtract three-digit numbers within 1,000. This scope promotes flexible thinking and efficiency in problem solving as students explore and apply various strategies to different contexts, including contextual problems they create.	2.4C, 2.4D
3 Weeks	**Unit 10: Building Understanding of Multiplication and Division** The **Multiply and Divide** scope reinforces skip counting as students count coins. This scope marks the introduction to multiplication and division through direct modeling and counting strategies. Students build a conceptual understanding of these operations through real-world contexts, setting the stage for more complex problem solving in future grades. The skills developed in this scope are applied later in the year as well when students determine the area of rectangles and represent data using bar graphs and pictographs.	2.6A, 2.6B
2 Weeks	**Unit 11: Personal Financial Literacy** The **Personal Financial Literacy** scope concludes Grade 2 by introducing saving, spending, borrowing, and lending. Students apply addition and subtraction skills to a real-world context as they calculate changes in an account balance due to spending and saving decisions and explore money management, setting a foundation for responsible financial behavior.	2.11A, 2.11B, 2.11C, 2.11D, 2.11E, 2.11F