CURRICULUM GUIDE

Math – Grade 1

Providence Schools

QUARTER 1

Content students have to learn	Processes students will learn and use
Unit 1.1 – Understanding and Composing Numbers to 12 (10 days)	
• Demonstrate conceptual understanding of numbers with respect to place value of numbers 0 to 12. • Apply concepts of equivalency in composing or decomposing numbers. • Demonstrate the magnitude of a number by comparing and ordering numbers to benchmark whole numbers.	» Use manipulatives as tools to solve problems. » Use patterns and relationships to analyze mathematical situations. » Demonstrate mathematical communication orally and through drawing. » Link different representations to solve problems.
Unit 1.2 – Comparing and Ordering Numbers to 12 (6 days)	
• Demonstrate understanding of the magnitude of whole numbers by ordering numbers. • Demonstrate understanding of the magnitude of numbers by comparing numbers to each other. • Compare numbers using *1 more.* • Use a number line to compare and order numbers.	» Use appropriate representations to organize, record, and communicate mathematical ideas (e.g., students should recognize the relationship among seven counters, seven tally marks, and the symbol 7). » Discuss, illustrate, and write about mathematical concepts and relationships. » Draw pictures and use objects to illustrate mathematical concepts.
Unit 1.3 – Understanding Addition to 9 (8 days)	
• Demonstrate conceptual understanding of the mathematical operation of addition through joining situations, composing and decomposing numbers, and part-part-whole relationships. • Develop understanding that there are multiple interpretations of addition and subtraction and the (inverse) relationship between those operations. • Understand the properties of addition (commutative and associative) and use those properties to add whole numbers.	» Recognize, explore, and develop mathematical connections. » Use models, known facts, properties, and relationships to explain thinking. » Identify the missing information needed to find a solution to a given story problem. » Link different representations. » Begin to realize that any representation is subject to multiple interpretations. » Communicate mathematical thinking using models, numbers, and writing.
Unit 1.4 – Understanding Subtraction from 9 or Less (11 days)	
• Understand that a missing part of a whole can be found when the whole and the other part are known. • Develop understanding that subtraction number sentences can be used to show a missing part, separating, or comparison situation. • Use the inverse relationship between addition and subtraction to find subtraction facts.	» Use a variety of processes including problem solving, reasoning, communicating, connecting, and representing. » Use objects to act out the actions in a problem. » Use models, known facts, properties, and relationships to explain thinking. » Draw pictures and use objects to illustrate mathematical concepts. » Discuss, illustrate, and write about mathematical concepts and relationships.

Content students have to learn	Processes students will learn and use
Unit 1.5 – Using Benchmarks of 5 and 10 (6 days)	
• Understand that numbers can be used for different purposes. • Develop understanding that numbers can be classified and represented in different ways. • Develop understanding that any number, measure, numerical expression, algebraic expression, or equation can be represented in an infinite number of ways that have the same value. • Understand there are multiple interpretations of addition and subtraction of rational numbers and that each operation is related to the other operations. • Use benchmark numbers to compare whole numbers.	» Use models, known facts, properties, and relationships to explain thinking. » Use patterns and relationships to analyze mathematical situations (e.g., count by fives). » Draw pictures and use objects to illustrate mathematical concepts. » Discuss, illustrate, and write about mathematical concepts and relationships. » Create and use age-level-appropriate representations to organize, record, and communicate mathematical ideas (e.g., recognize the relationship among seven counters, seven tally marks, and the symbol 7). » Use conventional and self-generated (invented) representations and connect them.
Unit 1.6 – Using Addition Strategies to 12 (7 days)	
• Understand fact strategies (1 more, 2 more, doubles, near doubles, making 10) to provide a bridge from understanding the meaning of addition to quickly and accurately recalling basic addition facts. • Use properties of numbers to solve addition problems (e.g., composing/decomposing, commutative, identity). • Use mental math to add 1 or 2 more. • Demonstrate understanding of equality by finding a missing addend.	» Use models, known facts, properties, and relationships to explain their thinking. » Discuss, illustrate, and write about mathematical concepts and relationships. » Draw pictures and use objects to illustrate mathematical concepts.

QUARTER 2

Content students have to learn	Processes students will learn and use
Unit 2.1 – Using Subtraction Strategies from 12 or Less (8 days)	
• Understand that numbers can be compared and related to other numbers in different ways. • Understand that there are multiple interpretations for subtraction and addition. • Develop understanding that each operation is related to other operations. • Add and subtract facts up to 10 using mental math (e.g., 6 + 4 = 10, 10 – 3 = 7). • Make and revise estimates of the number of objects in a set up to 30. • Use equality to find missing addends or subtrahends.	» Use manipulatives to solve problems. » Solve problems using a variety of strategies. » Demonstrate mathematical communication through discussion, reading, listening, writing, and responding individually and in groups. » Discuss, illustrate, and write about mathematical concepts and relationships.
Unit 2.2 – Identifying 2-D and 3-D Geometry (12 days)	
• Understand that two- and three-dimensional objects with or without curved surfaces can be described, classified, and analyzed by their attributes. • Identify common objects that are examples of 3-D geometric figures. • Understand that two shapes are congruent if they are the same size and same shape. • Understand that shapes have a line of symmetry if they can be divided by a straight line into two congruent parts.	» Use models, known facts, properties, and relationships to explain thinking. » Demonstrate mathematical communication through discussion, reading, writing, listening, and responding individually and in groups. » Draw pictures and use objects to illustrate mathematical concepts.
Unit 2.3 – Extending Patterns (5 days)	
• Understand that patterns can be identified and extended using words, numbers, and symbols. • Understand that a repeating pattern is a unit that repeats again and again. • Understand that the unit of the pattern can be used to predict what comes next and extend the pattern or find the missing element.	» Use patterns and relationships to analyze mathematical situations (e.g., count by fives). » Demonstrate mathematical communication through discussion, reading, writing, listening, and responding individually and in groups. » Draw pictures and use objects to illustrate mathematical concepts.
Unit 2.4 – Using Skip Counting and Number Patterns to 100 (10 days)	
• Understand that relationships can be described and generalizations can be made for mathematical situations that have numbers or objects that repeat in predictable ways. • Understand that numbers can be used for different purposes, classified, and represented in different ways. • Use the base ten numeration system to record numbers using digits 0–9.	» Use patterns and relationships to analyze mathematical situations (e.g., count by fives). » Create and use age level appropriate representations to organize, record, and communicate mathematical idea (e.g., students should recognize the relationship among seven counters, seven tally marks, and the symbol 7).

Content students have to learn	Processes students will learn and use
• Apply concepts of place value by composing and decomposing whole numbers. • Make and revise estimates of a set of objects up to 30. • Use mental math for addition and subtraction facts to 10. • Describe numbers as even or odd and use that property to solve problems.	» Solve problems using manipulatives, graphs, charts, and diagrams. » Exhibit confidence in the ability to solve problems independently and in groups.
Unit 2.5 – Using Place Value for Two-Digit Numbers (9 days)	
• Understand the base ten number system as a method for recording numbers using digits 0–9, groups of 10, and place value. • Understand the pattern of numbers and how they are written and spoken. • Demonstrate understanding of whole numbers from 0 to 100 by using place value by decomposing and composing numbers (e.g., 5 is the same as 2 + 3). • Understand and apply the commutative and identity properties for addition to solve problems. • Estimate reasonable answers to addition problems.	» Link conceptual and procedural knowledge (e.g., students will know that when they "regroup," they are simply changing the representation of the minuend, but not its value). » Demonstrate that a problem may be solved in more than one way. » Use models, known facts, properties, and relationships to explain thinking. » Demonstrate mathematical communication through discussion, reading, writing, listening, and responding individually and in groups. » Draw pictures and use objects to illustrate mathematical concepts. » Solve problems using a variety of strategies including an organized list.

QUARTER 3

Content students have to learn	Processes students will learn and use
Unit 3.1 – Comparing and Ordering Numbers to 100 (9 days)	
• Use digits 0–9, groups of 10, and place value to order and compare numbers. • Demonstrate an understanding of the relation of inequality when comparing whole numbers to other numbers up to 100 using benchmark numbers and mathematical symbols. • Understand that the set of real numbers is infinite and ordered and that each real number can be associated with a unique point on the number line. • Estimate positions of numbers on a number line marked only in multiples of 10.	» Solve problems using charts and number lines. » Use patterns and relationships to analyze mathematical situations. » Link conceptual and procedural knowledge in relation to ordering and comparing numbers to 100. » Use models, known facts, properties, and relationships to explain thinking. » Exhibit confidence in the ability to solve problems independently and in groups.
Unit 3.2 – Counting Money Using Coins to Half Dollars (7 days)	
• Understand the names and values of coins (penny, nickel, dime, and quarter). • Understand the value of a collection of like coins up to $1.00. • Estimate the value of a set of coins. • Add a collection of like coins up to $1.00.	» Demonstrate that a problem may be solved in more than one way. » Use models, known facts, properties, and relationships to explain thinking. » Use patterns and relationships to analyze mathematical situations (e.g., count by fives). » Draw pictures and use objects to illustrate mathematical concepts. » Solve problems using a variety of strategies.
Unit 3.3 – Telling Time to the Half Hour (7 days)	
• Understand that days, weeks, and months are units of time and are shown on the calendar. • Understand that minutes, hours, and days are units of time and are shown on a clock. • Understand that the hour hand tells the hour and the minute hand tells the number of minutes after the hour. • Recognize and tell time to the hour and half hour.	» Use models, known facts, properties, and relationships to explain thinking. » Demonstrate mathematical communication through discussion, reading, writing, listening, and responding individually and in groups. » Draw pictures and use objects to illustrate mathematical concepts. » Recognize and use mathematics in daily life.
Unit 3.4 – Using Addition Strategies for Facts to 18 (10 days)	
• Demonstrate understanding of the relation of inequality when comparing numbers by using *1 more.* • Understand addition of whole numbers by solving problems involving joining actions, part-part-whole relationships, and comparison situations. • Understand the addition of multiple one-digit numbers. • Apply concepts of equivalency in composing or decomposing whole numbers. • Estimate quantities using addition.	» Solve problems using a variety of strategies. » Exhibit confidence in the ability to solve problems in groups and independently. » Use known facts, properties, and relationships to solve problems. » Identify the missing information needed to solve problems. » Link conceptual and procedural knowledge.

Content students have to learn	Processes students will learn and use

Unit 3.5 – Using Subtraction Strategies for Facts to 18 (9 days)

- Understand that addition and subtraction have an inverse relationship, and this inverse relationship can be used to find subtraction facts.
- Understand that there are multiple interpretations of addition and subtraction (e.g., count up, difference, take away).
- Understand equality by finding the value that will make an open sentence true.
- Estimate quantities using subtraction.

» Draw pictures and use objects to illustrate mathematical concepts.
» Use models, known facts, properties, and relationships to explain thinking.
» Justify solution processes and answers (e.g., "I chose this method to solve the problem because …").

QUARTER 4

Content students have to learn	Processes students will learn and use
Unit 4.1 – Using Data from Various Types of Graphs (11 days)	
• Collect and organize class data using tally charts, pictographs, and tables with one-to-one correspondence. • Analyze, interpret, and describe class data to answer questions and formulate conclusions by determining *more, less, or equal.* • Describe the likelihood of an event using *more likely* or *less likely.* • Use location and positional words to understand spatial relationships.	» Solve problems using a variety of strategies. » Demonstrate mathematical communication through discussion, reading, writing, listening, and responding individually and in groups. » Draw pictures and use objects to illustrate mathematical concepts.
Unit 4.2 – Using Fractions to Describe Equal Parts (7 days)	
• Understand that a region can be divided into equal-sized parts in different ways. • Recognize that equal-sized parts of a region have the same area but not necessarily the same shape. • Demonstrate that some sets can be divided into equal parts. • Understand that equal parts of a set have the same number of objects in each part. • Estimate the number of objects in a set.	» Discuss, illustrate, and write about mathematical concepts and relationships. » Use models, properties, and relationships to explain thinking. » Draw conclusions using deductive reasoning. » Demonstrate mathematical communication through discussion, reading, writing, listening, and responding individually and in groups.
Unit 4.3 – Adding and Subtracting Tens and Ones (12 days)	
• Add groups of 10 using mental math. • Use the traditional algorithm for adding a twodigit number and a one-digit number by adding the ones first. • Use the traditional algorithm for subtracting a one-digit number from a two-digit number by subtracting the ones first. • Understand there is more than one algorithm for each of the operations with rational numbers. • Use various strategies for basic facts and most algorithms for operations with rational numbers, using both mental math and paper and pencil. • Use equivalence to transform calculations into simpler ones. • Estimate quantities using addition and subtraction.	» Formulate and solve multi-step problems from everyday and mathematical situations. » Exhibit confidence in the ability to solve problems independently. » Use known facts, properties, and relationships to explain their thinking. » Link conceptual and procedural knowledge.
Unit 4.4 – Measuring and Comparing Length, Capacity, and Temperature (11 days)	
• Use comparative language to describe and compare attributes of objects (e.g., length, weight, temperature, capacity). • Use nonstandard measurement to determine the length or height of two-dimensional objects. • Estimate lengths and capacity of objects using nonstandard measurement.	» Demonstrate mathematical communication through discussion, reading, writing, listening, and responding individually and in groups. » Solve problems using reasoning skills and exploring relationships. » Determine if an estimate is reasonable.

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