

# CURRICULUM

## GUIDE

Math - Grade 1

Providence  
Schools

### **Background**

Providence Schools teachers and administrators worked collaboratively with consultants from the Charles A. Dana Center at the University of Texas at Austin to develop the mathematics and science curriculum frameworks. The curriculum frameworks encompass two critical questions:

- Content Standards that establish clearly defined expectations for all students, helping to answer the question, ***What do students have to learn?***
- Performance Standards that determine performance expectations for content standards, helping to answer the question, ***How well do the students have to learn it?***

The curriculum framework provides a work plan that directs the instruction delivered in every classroom in every school in the district. Instruction—the way the curriculum is presented to students—will focus on the needs of students.

### **Purpose and Use of Curriculum Guides**

Curriculum Guides for the curriculum for each grade and subject outline the approximate number of days that each unit in the curriculum will be taught; describe the content to be learned; and list the essential questions that students should be able to answer by the end of the unit.

Parents should become familiar with the Curriculum Guides. You should know when your child is being taught different topics. You should also know the essential questions that your child should be able to answer by the end of each unit.

It is important that you understand that you do not have to be familiar with the content that your child is learning in order to help them with their studies. There are basic questions that you can ask to determine if your child understands the content.

### ***Ask your child what she is learning in each subject***

*Does she understand the topic? Is the unit exciting or boring? What specifically does she like or dislike about the topic? Does she understand how the topic relates to the real world?*

You know your child better than anyone. You will be able to tell if she or he is benefiting from the instruction and understanding the content of the material by the way they answer you. Speak to your child's teacher if you suspect there is a problem.

### ***Ask your child about his assignments***

*What is the required work? Has he finished the work on time? Is he having difficulty? If he is having difficulty, why?*

Encourage your child to talk to her teachers if she is having difficulty understanding a concept or completing an assignment. If your child continues to experience difficulty, speak to the teacher yourself so that the two of you can work together to support your child.

Even if you do not understand the content that your child is learning, the fact that you are showing interest in his or her school work and believe that it is important that he or she does well sends a powerful message.

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## QUARTER I

### Content students will be learning

### Essential questions students should be able to answer by end of unit

#### 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.

- » What comes in sets of 2? Sets of 5?
- » How are 5 and 10 related?
- » How can you use a ten frame to help you represent 6? 10? 12?
- » How can you arrange counters to show 12 (and other numbers) so you can quickly see how many you have?

#### 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.

- » What does *greater than/less than* mean?
- » How can you use greater than/less than when comparing two numbers? Give two examples.
- » How can a group of three or more numbers be ordered?
- » How can you use a number line to tell if a number comes before, after, or between other numbers?
- » How can you use acting it out to solve a problem?

#### 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.

- » How can the numbers 6 and 7 be described by their parts?
- » How can addition number sentences be used to show the parts and the whole?
- » Does changing the order of the addends change the sum? Why or why not?
- » How can numbers be broken up into parts of a whole?
- » How can stories about joining be represented by pictures and addition sentences?

#### 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.

- » How can subtraction be used to compare two groups?
- » How are addition and subtraction related?
- » How can you find the missing part of [6, 7, 8, 9] when the other part is known?
- » How can you write a number sentence to show subtraction?
- » How can you use counters to act out and solve subtraction problems?

## QUARTERS 1 & 2

### Content students will be learning

### Essential questions students should be able to answer by end of unit

#### Unit 1.5 - Using Benchmarks of 5 and 10 (6 days)

- Understand that numbers can be used for different purposes and can be classified and represented in different ways.
- 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.

- » How can you represent numbers to 10 on a ten frame?
- » How can the number 10 be represented as two parts?
- » How is making a table helpful to organize information to solve a problem?
- » How can you recognize numbers on a ten frame?
- » How can a known part of 10 be used to find the missing part?
- » How many ways can you represent 10? 8? 7?

#### 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.

- » What are helpful strategies for addition facts with 0? 1? 2?
- » How can you identify and complete doubles facts?
- » How can you use a doubles fact to find the answer to a near-double fact?
- » How can a ten frame make addition easier?
- » How can you use 10 to solve an addition problem with a 9?

#### QUARTER 2

#### QUARTER 2

#### 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.

- » How can you use patterns and counting as strategies for remembering subtraction facts with 0, 1, and 2?
- » How can you use addition with doubles to solve a subtraction fact?
- » How can you use addition facts to solve subtraction problems?
- » How is an addition fact related to a subtraction fact?
- » How can you use drawing a picture and writing a number sentence to solve a problem and check your work?

#### 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.

- » What are some objects in the classroom that are like the plane shapes?
- » How can you use what you know about plane shapes to sort them?
- » How does writing down all the ways of doing something help to solve a problem?
- » How can you prove that two shapes are congruent?
- » How can plane shapes be combined to make new shapes?

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## QUARTER 2 (CONTINUED)

### Content students will be learning

### Essential questions students should be able to answer by end of unit

#### UNIT 2.2 - IDENTIFYING 2-D AND 3-D GEOMETRY (CONTINUED)

- 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.

#### UNIT 2.2 - IDENTIFYING 2-D AND 3-D GEOMETRY (CONTINUED)

- » How can you show if a shape has symmetry?
- » What are some everyday objects that are like the geometric solids?
- » How can attributes be used to sort solid figures?

#### 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.

- » How can a repeating pattern be identified and described?
- » How can you predict what comes next in a repeating pattern?
- » How can a repeating shape pattern be extended?
- » How can looking for a pattern help solve a problem?

#### 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.
- 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.

- » How can you use ten frames to show numbers 11 to 20 as a group of 10 and some more?
- » How can you show the relationship between two numbers that are 1 or 2 more than or fewer than each other?
- » How can you use groups of 10 to count?
- » What visual patterns and number patterns are made by skip counting on a hundreds chart?
- » How can you use skip counting to find a total number of objects?
- » What is an even number? What is an odd number?
- » How can ordinal positions in a row or list be found by counting?
- » How can you find the relationship between numbers in a table?
- » How can finding a number pattern help you solve a problem?

#### 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.

- » How can a number be broken into groups of 10 and leftover 1s?
- » How many tens make up each of the decade numbers from 10 to 90?
- » How can you use tens and ones models to represent a number in different ways?
- » What is your strategy for estimating the answer?
- » When objects are grouped together in sets of 10 and leftover 1s, how do you write the number for the total group of objects?
- » How can you use an organized list to solve a problem?
- » What are different ways to write a number?

## QUARTER 3

### Content students will be learning

### Essential questions students should be able to answer by end of unit

#### QUARTER 3

#### QUARTER 3

#### 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.

- » How is a number changed when its ones digit is changed by 1? When its tens digit is changed by 1?
- » How can a hundreds chart show the relationships of 1 more than, 1 less than, 10 more than, and 10 less than?
- » For any two 2-digit numbers, how can you identify the greater number?
- » What patterns do you notice on the hundreds chart?
- » How do you estimate the location of two-digit numbers on a number line?
- » How does the ones digit change in a number that comes before or after a given number?
- » How do ones digits help you decide what number comes between two given numbers?
- » How is ordering three numbers similar to comparing two numbers?
- » How does listing all the possible ways to do something help to solve a problem?

#### 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.

- » How can you find the value of a collection of pennies or nickels?
- » How many ways can you make 25 cents?
- » How can you solve a problem by learning from a first attempt to make a better attempt the next time you solve it?
- » How can you estimate the value of a collection of coins?
- » How can a set of coins be counted to find the value of the set?
- » What are strategies for adding coins?

#### 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.

- » How do the hands on a clock show time?
- » How can minutes, hours, and days be used to estimate and order the time duration of activities?
- » How can you use a calendar to keep track of days, weeks, months, and years?
- » How can you use a schedule to plan your day?
- » What are the different ways that you write and see times on a clock?
- » How do you tell and write time to the half hour?
- » How can you use information in a table to solve problems?

## QUARTERS 3 & 4

### Content students will be learning

### Essential questions students should be able to answer by end of unit

#### 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.

- » How can you identify and show a doubles fact?
- » How can you use a doubles fact to find the sum of a doubles-plus-1 fact?
- » What strategies can be used to find the sums of doubles-plus-2 facts?
- » What strategy can you use to add three numbers?
- » How can a table help you organize information and find different solutions?
- » How can the answer to one problem be used as information needed to solve another problem?

#### 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.

- » What are related facts?
- » How does the relationship between addition and subtraction create a fact family?
- » How can you use addition to solve subtraction?
- » How can you identify an addition fact that will help you solve a subtraction problem?
- » How can drawing a picture and writing a number sentence help you solve a problem?

#### QUARTER 4

#### QUARTER 4

#### 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.

- » What questions can you answer by looking at a picture/bar graph?
- » How can the position of an object on a grid be described?
- » How can connecting cubes (or other objects) be used to make a real graph?
- » How can you use information in a tally chart to make a bar graph and answer questions?
- » How can tally marks be used to record information?
- » How can you create a picture graph to show information and to answer questions?
- » How can you tell when it is certain or impossible for something to happen?
- » On a spinner of two colors, how can you tell which color a spinner is likely to land on?

## QUARTER 4 (CONTINUED)

### Content students will be learning

### Essential questions students should be able to answer by end of unit

#### 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.

- » How can you divide a shape into equal parts?
- » How can you describe equal parts of a whole?
- » How can you show and describe parts of a set?
- » How can you describe parts of a set?
- » How can drawing a picture help you solve problems related to parts of a set?

#### Unit 4.3 - Adding and Subtracting Tens and Ones (9 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, both mental math and paper and pencil.
- Use equivalence to transform calculations into simpler ones.
- Estimate quantities using addition and subtraction.

- » How is adding groups of 10 similar to adding numbers less than 10?
- » What changes when you add tens to a two-digit number?
- » How do two-digit numbers change when multiples of 10 are added to them?
- » How do you know when to regroup when adding to a two-digit number?
- » How can you use a hundreds chart to subtract tens from two-digit numbers?
- » How do two-digit numbers change when multiples of 10 are subtracted?
- » How do you know when to regroup when you subtract from a two-digit number?
- » How do you know if some of the information in a problem is not needed to solve the problem?

#### Unit 4.4 - Measuring and Comparing Length, Capacity, and Temperature (14 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.

- » How can you compare and order objects according to length? Temperature? Capacity? Weight?
- » What is the perimeter of a shape and how can it be measured?
- » How can you use units such as cups, pints, and quarts to measure capacity?
- » How does the length of the unit of measure affect the number of units needed to measure an object's length?
- » How can the weight of different objects be compared?
- » How can you use grams and kilograms to measure objects?