

CURRICULUM

GUIDE

Math - Grade 5

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.

Sharon Contreras

Chief Academic Officer
Providence Public School Department



**Providence
Schools**

797 Westminster Street
Providence, RI 02903
www.providenceschools.org

QUARTER I

Content students will be learning

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

Unit 1.1 - Comparing and Ordering Numbers (9 days)

- Understand the magnitude of numbers by comparing and ordering whole numbers and decimals.
- Understand rational numbers from 0 to 9,999,999 using models, explanations, and representations.
- Represent rational numbers in different ways by composing and decomposing and place value.
- Extend patterns in problem situations using a variety of models.

- » How can you compare and order whole numbers?
- » How can you represent decimals in standard form and word form?
- » How can you compare and order decimals?
- » How can a table or a sequence help you find a pattern?

Unit 1.2 - Adding and Subtracting Whole Numbers and Decimals (11 days)

- Use place-value materials and the commutative and associative properties of addition to calculate sums.
- Estimate the sums and differences of whole numbers and decimals to the hundredths.
- Write and solve addition and subtraction problems with multiple steps.
- Identify and extend linear and nonlinear patterns.
- Compare and order decimals in context using models or number lines.
- Solve one-step linear equations.

- » What are different strategies for adding and subtracting mentally?
- » How can you round whole numbers and decimals?
- » How can you estimate to find sums and differences?
- » How can you draw a picture to help you choose an operation?
- » How can you use a place-value chart to help add or subtract large numbers?
- » How can you add or subtract decimals?
- » How can you solve problems that require more than one step?

Unit 1.3 - Multiplying Whole Numbers (10 days)

- Use the commutative, associative, and identity properties of multiplication to simplify computation and verify mental math.
- Use basic facts and place-value patterns to find products mentally using multiples of 10 or 100.
- Make estimates in a given situation by identifying when estimation is appropriate and determining the level of accuracy needed.
- Use order of operations, with and without parentheses, to solve problems.

- » What are the properties of multiplication?
- » How can you use mental math to multiply by multiples of 10 and 100?
- » How can you estimate products?
- » How can you draw a picture to help choose an operation?
- » How do you multiply by a one-digit number?
- » How do you multiply by a two-digit number?
- » How can you multiply three-digit numbers by two-digit numbers?

Unit 1.4 - Dividing by One-Digit Divisors (12 days)

- Use mental math to divide multiples of 10 and 100 by one-digit numbers.

- » How can you use mental math to divide multiples of 10 and 100?
- » How can you use compatible numbers to estimate quotients?

QUARTERS I & 2

Content students will be learning

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

UNIT 1.4 - DIVIDING BY ONE-DIGIT DIVISORS (CONTINUED)

- Interpret remainders to solve division problems and check answers for reasonableness.
- Use estimation and compatible numbers to find the quotient of a division problem.
- Divide a three-digit number by a one-digit number using models, explanations, or problem solving.
- Solve division problems involving the use of factors, multiples, prime numbers, and composite numbers.
- Solve one-step linear equations using models or representations of the expressions.

UNIT 1.4 - DIVIDING BY ONE-DIGIT DIVISORS (CONTINUED)

- » How can you check that your answers are reasonable?
- » How can you use models and symbols to understand and record division?
- » How would you divide a three-digit number by a one-digit number?
- » How can you draw a picture to help choose an operation?
- » How do you know whether a number is prime?

QUARTER 2

QUARTER 2

Unit 2.1 - Dividing by Two-Digit Divisors (10 days)

- Mentally divide three- and four-digit multiples of powers of 10 by their compatible factors.
- Divide whole numbers with one- and two-digit divisors.
- Interpret remainders to solve division problems and check answers for reasonableness.
- Use estimation and compatible numbers to find the quotient of a division problem.
- Divide to solve problems involving factors and multiples.

- » How can patterns help you divide large multiples of 10?
- » How can you use compatible numbers to estimate quotients?
- » How can you solve multistep problems?
- » How do you divide by a multiple of 10?
- » What are the strategies for dividing by two-digit numbers?
- » How can you solve problems involving division of larger numbers?
- » How can you identify missing information in a word problem?

Unit 2.2 - Understanding Variables and Expressions (8 days)

- Apply the conventions of order of operations to solve problems involving multiple operations.
- Translate word phrases into algebraic expressions using letters to represent unknown quantities.
- Write and evaluate algebraic expressions using a given value.
- Apply the distributive property to solve problems and simplify computations.
- Identify patterns and write algebraic expressions to describe relationships.

- » How can you translate words into expressions?
- » How can you write and evaluate expressions with variables?
- » How can you evaluate a numerical expression containing more than one operation?
- » How can you use algebraic expressions to describe relationships?
- » How can you use the distributive property to write two equal expressions?

Unit 2.3 - Identifying and Classifying Shapes (8 days)

- Identify and extend the use of linear and nonlinear patterns represented in models, tables, or problem situations.
- Classify polygons by number of sides and their length (i.e., regular and non-regular polygons).
- Classify triangles according side length and angle measure.
- Use properties or attributes to distinguish among different types of triangles and quadrilaterals.
- Make and test generalizations as part of a problem-solving strategy.

- » What are some properties that describe different types of quadrilaterals?
- » How can you draw and classify angles?
- » How do you classify polygons?
- » How do you classify triangles?
- » How can you test your generalizations and/or those of your classmates?
- » What are strategies for identifying a pattern in a table?

QUARTERS 2 & 3

Content students will be learning

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

Unit 2.4 - Identifying and Representing Fractions and Decimals (11 days)

- Develop understanding of positive fractional numbers using proper/improper fractions and mixed numbers.
- Represent decimals to thousandths using models, explanations, or other representations.
- Demonstrate understanding of equivalent positive fractions.
- Compare and order positive fractional numbers.
- Understand the relationship between a decimal and a fraction.

- » How can you use fractions to name part of a whole or part of a set?
- » How are fractions and division related?
- » How are mixed numbers and improper fractions related?
- » How can you convert one fraction into an equivalent one?
- » How can you compare fractions?
- » How can you write a fraction as a decimal?
- » How can a fraction showing thousandths be expressed as a decimal?
- » How can a number line be used to compare and order decimals, fractions, and mixed numbers?

Unit 2.5 - Adding and Subtracting Fractions and Mixed Numbers (8 days)

- Add and subtract fractions and mixed numbers with like and unlike denominators.
- Identify equivalent positive fractional numbers in problem situations using models or number lines.
- Understand positive fractional numbers using models, explanations, or other representations.

- » How do you add or subtract fractions with like denominators?
- » How do you find a common multiple of two numbers?
- » How can you add fractions with unlike denominators?
- » How can you subtract fractions with unlike denominators?
- » How can you add mixed numbers?
- » How can you subtract mixed numbers?
- » How can the strategy Try, Check, and Revise be used to help you solve problems?

QUARTER 3

QUARTER 3

Unit 3.1 - Finding Perimeter and Area (9 days)

- Measure length to the nearest fraction of an inch.
- Choose the most appropriate metric unit to measure length.
- Find the perimeter of different shapes.
- Find the area of squares and rectangles.
- Find the area of polygons or irregular figures on grids.
- Find the area of right triangles using models, manipulatives, or formulas.
- Make conversions within systems when solving problems.

- » How can using fractions of an inch or other units of measure help you measure more precisely?
- » What units are used to measure length in the metric system?
- » How can you find the distance (perimeter) around a polygon?
- » How can you find the area of a rectangle?
- » How can finding the area of a rectangle help you find the area of a parallelogram?
- » How can you use a parallelogram to find the area of a triangle?
- » How can drawing a picture and writing an equation help you solve a problem?

QUARTER 3 (CONTINUED)

Content students will be learning

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

Unit 3.2 - Identifying and Describing Solids (7 days)

- Identify, compare, or describe threedimensional shapes using attributes such as bases and faces.
- Develop visualization by building models of three-dimensional figures.
- Demonstrate how to find the area of irregular figures on grids and the volume of rectangular prisms using models, manipulatives, or formulas.
- Identify and extend linear and nonlinear patterns represented in models, tables, or problem situations.

- » How do you describe a solid figure?
- » How can you use a two-dimensional shape to represent a three-dimensional solid?
- » How can you find the area of an irregular shape?
- » How do you find the volume of a rectangular prism?
- » How can you use a simpler problem to solve another problem?

Unit 3.3 - Measuring Customary and Metric Units Including Time and Temperature (10 days)

- Measure and use units of measure appropriately and consistently.
- Make conversions within systems of measurement.
- Solve problems about elapsed time.

- » How can you measure capacity in customary units?
- » How do you measure an object's mass?
- » How do you convert from one unit of customary length to another?
- » How do you convert from one unit of metric length to another?
- » What is elapsed time and how is it determined?
- » How can you find elapsed time on consecutive days?
- » How do you solve problems about changes in temperature?
- » How can you use a table to solve a problem?

Unit 3.4 - Solving and Writing Equations (7 days)

- Use addition and subtraction to solve an equation.
- Multiply and divide to solve an equation.
- Develop understanding of equality between two expressions using models or different representations.
- Identify and extend linear and nonlinear patterns using models, tables, and problem situations.
- Draw a picture and write an equation to solve a problem.

- » How can you use addition and subtraction to solve an equation?
- » How can an equation be solved using multiplication and division?
- » How do you graph an inequality on a number line?
- » How can you write a rule for a pattern to complete a table?

Unit 3.5 - Understanding Percents (8 days)

- Develop understanding of benchmark percents using models, explanations, or other representations.
- Explore the relationships between fractions, decimals, and percents.

- » What does percent mean?
- » How are percents related to fractions and decimals?
- » Where have you seen/used decimals, fractions, and/or percents other than in school?

QUARTERS 3 & 4

Content students will be learning

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

UNIT 3.5 - UNDERSTANDING PERCENTS (CONTINUED)

- Compare and order fractions or percents.
- Identify fraction and percent equivalents.

UNIT 3.5 - UNDERSTANDING PERCENTS (CONTINUED)

- » What is 50% of 74 people?
- » What percent is $\frac{3}{8}$?
- » How do you know that $\frac{1}{5}$ is equivalent to 20%?

QUARTER 4

QUARTER 4

Unit 4.1 - Understanding Equations and Graphs (8 days)

- Understand the magnitude of integers in context using a number line.
- Identify and graph points in all four quadrants on a coordinate plane.
- Determine horizontal and vertical distances between points on a coordinate grid.
- Evaluate linear expressions and identify linear patterns in tables and graphs using whole numbers.
- Write a rule for finding specific cases of a linear equation using letters to represent unknown quantities.
- Demonstrate understanding of linear relationships as a constant rate of change by identifying situations that represent constant rates of change.
- Demonstrate understanding of equality by solving one-step linear equations.
- Determine which values of a replacement set make the equation a true statement.

- » What are integers, and what situations can integers represent?
- » How can you describe the location of a point on a coordinate plane?
- » How can you find the distance between integers on a number line?
- » How can you find the distance between two points on a coordinate grid?
- » How can you graph an equation on a coordinate grid?

Unit 4.2 - Using Data in Graphs (10 days)

- Collect, organize, and appropriately display data to make predictions or solve problems.
- Make and interpret double-bar graphs, line graphs, frequency tables, and circle graphs.
- Analyze data to determine mean, median, mode, and range from a set of data.
- Identify representations that best display a given set of data.

- » How can you display the data collected in a survey?
- » How do you make and interpret a double-bar graph?
- » How can data be represented on a line graph?
- » How can you use percents to label a circle graph?
- » How can you find the mean, or average, of a set of data?
- » What are some ways to describe a set of data?
- » How do you choose the best graph to display data?

Unit 4.3 - Describing Transformations, Congruency, and Symmetry (14 days)

- Recognize and build similar figures using triangles and rectangles.
- Demonstrate conceptual understanding of similarity by describing the relationships among angles, line lengths, and areas of similar figures using triangles and rectangles.
- Identify vertices of polygons as they are translated, reflected, and rotated on a coordinate grid.
- Interpret and give directions on a coordinate grid using all four quadrants.

- » What is the relationship among angles, line lengths, and areas of similar triangles and rectangles?
- » How can you describe and show a translation?
- » How can you describe and show a reflection?
- » How can you describe and show a rotation?
- » How can you verify that two figures are congruent?
- » How can you extend the original figure to a similar one?
- » How can you identify lines of symmetry in a figure?

QUARTER 4 (CONTINUED)

Content students will be learning

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

Unit 4.4 - Probability (8 days)

- Use tree diagrams or multiplication to find all possible outcomes of a probability event.
- Determine the theoretical probability of an event and express the results as a fraction.
- Determine the experimental probability of an event and express the results as a fraction.
- Use the probability of an event to make predictions.

- » How can you list outcomes of a probability event?
- » What is the probability of an event?
- » How can you use probability to make predictions?
- » How do you find all the different ways pairs of objects can be chosen?