

CURRICULUM

GUIDE

Math - Grade 3

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
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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 - Comparing and Ordering Numbers (11 days)

- Understand rational numbers from 0 to 999 using models, explanations, and representations.
- Demonstrate understanding of the magnitude of a number by comparing and ordering numbers to benchmark whole numbers.
- Compose and decompose numbers in different ways without changing the values.
- Solve decimal problems in the context of money.
- Solve problems involving combinations using a variety of strategies.

- » What are ways to compose and decompose numbers?
- » What strategies can be used for comparing and ordering numbers?
- » How can you use a list to find all the combinations in a problem?
- » What are strategies for adding and subtracting decimals in problem situations?

Unit 1.2 - Adding Two-Digit and Three-Digit Numbers (14 days)

- Solve problems involving addition.
- Estimate sums in a given situation.
- Mentally add and subtract multiples of 10 and 100.
- Understand and apply commutative and associative properties of addition.
- Understand equality by finding the value that will make an open sentence true.

- » How can you decompose numbers to add two-digit numbers mentally?
- » When should you use estimation?
- » What strategies can be used to add two-digit numbers mentally?
- » How do you make an open sentence (such as $2 + \underline{\quad} = 7$) true?
- » How do you know if your answer is reasonable?
- » How can the commutative and associative properties of addition help to solve problems?

Unit 1.3 - Developing Number Sense for Subtraction (8 days)

- Understand the inverse relationship between addition and subtraction.
- Understand that joining, separating, part-part-whole, or comparison problems can be solved using subtraction.
- Write number sentences that help express problem-solving solutions.
- Develop number sense and mental math strategies for subtraction.
- Understand and use equivalency to solve problems.
- Estimate a difference using various strategies.

- » How can addition help you subtract?
- » How are addition and subtraction related?
- » What strategy could you use to solve a subtraction problem?
- » How do you know your answer is correct?

Unit 1.4 - Subtracting Whole Numbers to Solve Problems (9 days)

- Connect conceptual understanding to algorithms.
- Apply commutative and associative properties for addition to solve problems.
- Understand how to use various strategies for subtracting two- and three-digit numbers.

- » How can you use models to subtract two- and three-digit numbers with regrouping?
- » When do you need to regroup to solve a subtraction problem?

QUARTERS 1 & 2

Content students will be learning

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

UNIT 1.4 - SUBTRACTING WHOLE NUMBERS TO SOLVE PROBLEMS (CONTINUED)

- Evaluate the reasonableness of solutions and select the appropriate method involving a subtraction situation.

UNIT 1.4 - SUBTRACTING WHOLE NUMBERS TO SOLVE PROBLEMS (CONTINUED)

- » How can a picture help you write and solve a number sentence?
- » When is regrouping not necessary?

QUARTER 2

QUARTER 2

Unit 2.1 - Understanding and Developing Multiplication (12 days)

- Understand the relationship between multiplication and repeated addition using models, number lines, or explanations.
- Accurately solve real-world problems involving multiplication.
- Apply and use the multiplicative property of zero, identity property for multiplication, and commutative property of multiplication to solve problems.

- » How can you use arrays to solve a multiplication problem?
- » Can you explain how the products can be the same if the number of rows is different?
- » What patterns do you see in the factors?
- » How do you know when to multiply to solve a problem?

Unit 2.2 - Developing Strategies for Multiplication (9 days)

- Solve problems involving the concept of multiplication using models and explanations.
- Use the associative property of multiplication, commutative property of multiplication, and the distributive property of multiplication to solve problems.
- Understand equivalence between two expressions using models or different representations of the expressions.

- » How can an array help you model the problem?
- » How could you break this array into two parts to model two multiplication facts that you already know?
- » How could you use multiplication to solve this problem?
- » How can you rearrange this problem into simpler, smaller problems in order to solve it?

Unit 2.3 - Identifying and Extending Patterns (10 days)

- Identify and extend linear and non-numeric patterns using models, tables, or sequences.
- Extend tables of ordered pairs for situations involving multiplication, addition, and subtraction.
- Extend patterns of cubes or tiles (models) to the next one to three elements.
- Determine equivalence between two expressions using models or different representations.

- » What strategies can you use to find the next element of a pattern?
- » What pairs of numbers fit a pattern?
- » How is a numerical expression different from a number sentence?
- » How can you compare two expressions?
- » How can you solve problems by acting them out and using reasoning?

Unit 2.4 - Identifying and Classifying Solids and Shapes (9 days)

- Use properties or attributes of angles and sides to identify, describe, or distinguish among polygons.
- Develop understanding of congruency, composing, and decomposing two- and three-dimensional objects using models or explanations.

- » What is a polygon? What is not a polygon?
- » How does the number of sides compare to the number of angles?
- » How can you compare the length of the sides on a triangle? On a quadrilateral?

QUARTERS 2 & 3

Content students will be learning

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

- Develop conceptual understanding of spatial reasoning by copying, comparing, and drawing models of polygons and circles.
- Build models of rectangular prisms to demonstrate conceptual understanding of congruency.

Unit 2.5 - Identifying Congruency and Symmetry (8 days)

- Use translations, reflections, and rotations to determine if two figures are congruent.
- Identify congruent figures by using line symmetry within a shape.
- Understand the difference between congruence and similarity.
- Develop conceptual understanding of similarity by identifying similar shapes.

QUARTER 3

Unit 3.1 - Understanding Fractions (12 days)

- Understand the part-to-whole relationship in area and set models for benchmark fractions (halves, thirds, quarters, sixths, and eighths).
- Identify equivalent positive fractions using models, number lines, or explanations.
- Compare equivalent positive fractions using models, number lines, or explanations.
- Identify and extend linear and non-numeric patterns represented in models, tables, or sequences.
- Record and organize data in a problem-solving situation.

Unit 3.2 - Using Money to Understand Decimals (8 days)

- Develop conceptual understanding of decimals within a context of money using models, explanations, and other representations.
- Solve problems involving addition and subtraction of decimals.
- Solve problems involving addition and subtraction of numbers with regrouping.
- Mentally add and subtract whole numbers using multiples of 10 and 100.
- Find solutions to problems with missing data and recognize when extra data are not needed to solve the problem.

- » How are two-dimensional figures different from solid figures?
- » How can you make a rectangular prism from other three-dimensional shapes?

- » How can you tell if two figures are congruent?
- » What does a figure with “at least” one line of symmetry mean?
- » How can you create a figure with a line of symmetry?
- » How can you check to see if a figure is symmetrical?
- » How can objects make it easier to solve a problem?
- » What helps determine if two figures are similar?

QUARTER 3

- » How many equal parts make up the whole?
- » How can you prove that $\frac{6}{8}$ is equivalent to $\frac{3}{4}$?
- » What must be true in order to compare fractions? Support your reasoning with models.
- » What benchmark fractions could you use to make your estimate?

- » How can you write a decimal and a fraction for the same part of a whole?
- » How are decimals and fractions related to money?
- » How can you add and subtract money?
- » How can you solve a problem by drawing a picture and writing a number sentence?
- » How can you tell if you have the information you need to solve a problem?
- » How do you mentally add and subtract two and three-digit whole numbers?

QUARTERS 3 & 4

Content students will be learning

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

Unit 3.3 - Measuring and Estimating Customary Units of Length, Capacity, and Weight (8 days)

- Measure and use units of length (inch, foot, yard) in problem situations.
- Use appropriate units of capacity and weight to solve problems.
- Convert units among inches, feet, and yards in problem situations.

- » How would you label a number line from 0 to 1 in fourths?
- » How do you think the marks on the ruler can help you measure?
- » How can you estimate and measure length?
- » What customary units describe how much a container holds?
- » How do you think the weight of a slice of cheese compares to the weight of a loaf of bread?

Unit 3.4 - Review Addition and Subtraction (4 days)

- Mentally add and subtract whole number facts through 20.
- Mentally add and subtract numbers that are multiples of 10.
- Accurately solve problems involving addition and subtraction with regrouping.
- Demonstrate understanding of the relative magnitude of numbers by comparing whole numbers to benchmark whole numbers in the hundreds.

- » How can you determine the distance between two numbers?
- » What would be an efficient way to sum up these numbers?
- » How do you know if your estimation is a good one?
- » What strategy did you use for solving the problem?
- » How do benchmark numbers assist you in solving this problem?

QUARTER 4

QUARTER 4

Unit 4.1 - Measuring and Estimating Metric Units of Length, Capacity, and Mass (7 days)

- Measure centimeters (to the whole centimeter) with accuracy.
- Measure meters (to the whole centimeter) with accuracy.
- Use units of measure appropriately (i.e., centimeter, meter, gram, kilogram).
- Make conversions within systems when solving problems.
- Identify and extend linear and non-numeric patterns represented in tables, models, or sequences.

- » How can you determine the most accurate unit of measurement for length? For weight?
- » How do you measure an object with a ruler?
- » How would you determine the length of an object even when the object begins on 2 centimeters and ends on 5 centimeters?
- » What objects would weigh about the same as 1 gram? 1 kilogram?
- » What objects would be about the same length as 1 centimeter? 1 meter?
- » How can a table help you solve a problem?

Unit 4.2 - Understanding and Finding Perimeter and Area of Shapes (11 days)

- Understand the concept of perimeter of polygons using models or manipulatives.
- Use concrete and pictorial models of square units to determine the area of rectangles.
- Express all measures of perimeter and area using the appropriate units.

- » How do you find the perimeter of a shape?
- » How can knowing one side length of a square help you find the perimeter?
- » Why do you think square units are used to measure area?
- » How can you use an array to help you find the area without counting each unit?
- » Explain in your own words the difference between perimeter and area.

QUARTER 4 (CONTINUED)

Content students will be learning

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

Unit 4.3 - Using Data in Graphs and Probability (14 days)

- Give directions from one location to another on a map or coordinate grid using words or compass directions.
- Interpret line plots, tally charts, tables, or bar graphs to answer questions and make predictions.
- Organize and display data using tables, tally charts, and bar graphs to formulate conclusions and solve problems.
- Describe events as *likely*, *unlikely*, *impossible*, or *certain* to determine outcomes.
- Collect, organize, and display data to answer questions or draw conclusions.
- Solve problems involving simple permutations using an organized list.

- » How do you determine how much a symbol in a pictograph represents?
- » How can you choose a scale to make a bar graph?
- » How do you locate a point on a grid?
- » What conclusions can you draw from tables and graphs?
- » How can you describe whether something is likely to happen?
- » How do you make and use line plots?
- » How do you know when you have the total number of arrangements?

Unit 4.4 - Measuring Time and Temperature (8 days)

- Tell time to the hour (to the 5-minute interval).
- Find elapsed time in problem situations.
- Solve problems involving conversions using equivalent units of time (such as 24 hours in 1 day, 7 days in a week).
- Read a thermometer to within 1-degree using both Celsius and Fahrenheit.

- » What are some different ways to read time?
- » What is another way to describe elapsed time?
- » How can understanding fractions help you tell time?
- » How can you work backward to solve a problem?
- » How do you read a thermometer?



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