

Curriculum Parent Overview (Kindergarten)

MATHEMATICS

UNIT #4: Collect, Count, and Measure

CONTENT FOCUS:

Students measure and compare the lengths of shoes, tape strips, and other objects. In this context, and via the Counting Jar, they continue to practice counting and representing quantities. Students also develop strategies for finding the total after a small amount is added to a set. Students act out story problems and play games that involve counting, comparing, and finding the total when a small amount is added or taken away. Students will investigate combinations of numbers as they arrange tiles and explore different ways a set of two-color counters can land. They consider how notation can represent such situations.

UNIT FOCUS:

- Understanding length: Understanding length and learning how to measure accurately is a complicated idea that develops gradually over time. In this Unit, students will approach measurement through direct comparison: “Is my pencil longer or shorter than a tower of 10 cubes?” Students will use multiple nonstandard units, such as craft sticks or cubes to quantify length: “How many cubes long is my shoe?” Quantifying length in this way is a real-world application of the counting skills that students are working on in kindergarten. When students measure lengths in this way, they must grapple with important ideas of measurement, such as how to line up units with objects being measured. They must also consider what happens if those units are (or are not) laid straight or if there are (or are not) gaps or overlaps between them. Students need many opportunities over the course of the elementary years to make sense of the idea that one unit can be repeated to describe length and to develop strategies for doing so accurately.
- Counting and representing quantities: The measurement activities provide important meaningful contexts for counting and keeping track of amounts. In order for kindergarten students to figure out how long an object or length is, they must count how many units - cubes or crafts sticks - fit along one dimension. Activities such as *Grab and Count: Two Handfuls*, *Collect 15 Together*, and the Counting Jar provide experience counting greater amounts, up to 15 or so. Students who can accurately count 10 or 12 objects may have to revisit various counting skills as the number of items they are asked to count increases. For example, they need to learn the names and sequences of the numbers and what the written numerals for those numbers look like. They may need to refine their strategies for keeping track of a count as the number items grow. This unit also uses the ideas and skills of counting to build a foundation on which students will develop an understanding of the operation of addition. Many games and activities ask the students to count a set of objects, add a small amount, and then ask, “Now how many?” As students keep track of the total number of objects in growing collections for organizing and keeping track. But they are also encouraged to begin combining small amounts rather than counting whole collections starting from one each time. Students continue to use pictures, numbers, words, and tools such as Ten Frames to represent quantities. In this unit, there is explicit focus on using numbers to record measurements and the result of the dice rolls or chip tosses, and to describe the way they see arrangements of tiles.

- Understanding, representing, and solving problems involving addition and subtraction: Students are introduced to addition and subtraction through story problems about combining and separating. When students solve story problems, they first need to make sense of the situation: What sequence of actions is being described in the problem? What does each amount represent? Is the second amount to be combined with the first, or is it to be *separated from* the first? Will the result be more or less than the initial amount? To help them answer such questions, students retell the stories, act them out, and solve them by modeling the action involved. As they become more proficient with counting small quantities, they can begin to explore combinations of these quantities. In this unit, students find many ways to arrange sets of square tiles for the numbers 5-10. They also repeatedly toss a set of two-color counters and record the way they land. As they do this work, they find that there are different ways to make a number - that 6 is 3 and 3 and also 5 and 1. Students also see addition notation used to describe such combinations. Although the contexts of the story problem and activities can be modeled by the operation of addition or subtraction, kindergarteners may not yet understand them as such; that is, they may think of them as contexts that convolve counting, rather than an action such as combining or separating. Students need many opportunities to count, to visualize and model the action of different types of problems, and to discuss the ways they are similar and different in order to develop an understanding of the operations of addition and subtraction and to be able to use efficient strategies across the problem types.
- Comparing and ordering quantities: Students continue to develop an understanding of more and less as they count and compare quantities, visualize the action of the combining and separating situations, and think about whether the result will be more or less. They play games that involve finding the total after 1 has been added or taken away. For some students, these activities connect to the work they are doing with counting and learning the sequence of numbers: "I know that 6 is 1 more than 5 because 6 is the number that comes after 5." Others are developing an image of the quantities that the counting sequence represents, and a sense of how those quantities are related.

MATHEMATICAL PRACTICES:

MP6: Attend to precision.

MP2: Reason abstractly and quantitatively.

CONNECTIONS TO PREVIOUS CONTENT: This unit builds mainly on the work in Unit 2, where students had many opportunities to develop their sense of numbers and quantities; connect number names, numerals, and quantities; count, compare, and order amounts; and directly compare the length of two or more objects. As they begin this unit, it is expected that students are fluently counting sets of up to 12 objects.

CONNECTIONS TO FUTURE CONTENT: In this unit, students encounter a variety of situations that involve counting, combining, and comparing amounts to 20, and practicing rote counting sequence to 50 including counting on from numbers other than 1. They revisit story problems, with a continued focus on making sense of the action of the problems, and work to model and record solutions. There is also a focus on finding combinations of a number and using numbers and notation to record their work.

MATH AT HOME:

- Play any of the following games with your child on SavvasRealize site after it has been introduced in the classroom:
 - Build It

- Grab and Count: Two Handfuls
- Collect 15 Together
- Build On
- Roll and Record 1, 2, and 3
- Double Compare
- Racing Bears
- One More/One Less
- Build It/Change It
- Toss the Chips
- Just as we do in school, your child can trace shop outlines on paper and then use paper clips (or another same-sized items such as blocks or toothpicks) to measure the length of the outline.
- Continue to focus on strategies for counting accurately.
- Find opportunities to ask your child about one more and one less
- Review the Math Words and Ideas videos for this unit on SavvasRealize site.