Grade K - Unit C - How Much? How Many?

Unit Focus

This unit introduces interval counting through the use of the number line and length measurement. Students are introduced to the number line model through hands-on activities that help them interpret the structure of the number line and the difference between discrete and interval counting. Students investigate the number line model in order to:

- order and compare numbers less than 20
- solve addition and subtraction problems within 10
- count on from a given number
- compare objects to see which is longer, shorter or the same length
- add with pennies and nickels

As students enter first grade, interval counting becomes crucial as the number line becomes the primary model for solving addition and subtraction problems.

Stage 1: Desired Results - Key Understandings

Standard(s)

Standards

- Common Core
  - *Mathematics: K*
    - Know number names and the count sequence.
    - Count to 100 by ones and by tens. *(CCSS.MATH.CONTENT.K.CC.A.1)*
    - Count forward beginning from a given number within the known sequence (instead of having to begin at 1). *(CCSS.MATH.CONTENT.K.CC.A.2)*
    - Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects). *(CCSS.MATH.CONTENT.K.CC.A.3)*
    - Understand the relationship between numbers and quantities; connect counting to cardinality. *(CCSS.MATH.CONTENT.K.CC.B.4)*
    - When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. *(CCSS.MATH.CONTENT.K.CC.B.4.A)*
    - Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. *(CCSS.MATH.CONTENT.K.CC.B.4B)*
    - Understand that each successive number name refers to a quantity that is one larger. *(CCSS.MATH.CONTENT.K.CC.B.4.C)*
    - Count to tell the number of objects.

Transfer

Students will be able to independently use their learning to...
T1 Analyze, compare, and order numbers on a number line in the range of 0-20.
T2 Represent situations using mathematical reasoning and symbols.

Meaning

Understanding(s)	Essential Question(s)
Students will understand that... **U1** Mathematicians understand that there is a specific order and structure to our number system **U2** Mathematicians make sense of quantities to represent situations mathematically.	*Students will keep considering...* **Q1** How can the relationship between quantities be represented? **Q2** How can counting help in our everyday lives? **Q3** How do I compare and order numbers?

Acquisition of Knowledge and Skill

Knowledge	Skill(s)
Students will know... **K1** How to use a number line to count the number of equal intervals between two points	*Students will be skilled at...* **S1** Counting to 40 **S2** Ordering and comparing numbers less than 20

Stage 1: Desired Results - Key Understandings

▪ Count to answer how many? questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects. *(CCSS.MATH.CONTENT.K.CC.B.5)* ▪ Compare numbers. ▪ Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. *(CCSS.MATH.CONTENT.K.CC.C.6)* ▪ Compare two numbers between 1 and 10 presented as written numerals. *(CCSS.MATH.CONTENT.K.CC.C.7)* ▪ Understand addition, and understand subtraction. ▪ Represent addition and subtraction with objects, fingers, mental images, drawings1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. *(CCSS.MATH.CONTENT.K.OA.A.1)* ▪ Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1). *(CCSS.MATH.CONTENT.K.OA.A.3)* ▪ Mathematical Practices ▪ Model with mathematics. *(CCSS.MATH.MP.4)* ▪ Look for and make use of structure. *(CCSS.MATH.MP.7)* **Madison Public Schools Profile of a Graduate** Analyzing: Examining information/data/evidence from multiple sources to identify possible underlying assumptions, patterns, and relationships in order to make inferences. *(POG.1.2)*	**K2** More efficient strategies for adding and subtracting two quantities **K3** How to count on to add **K4** How to count back to subtract **K5** The meaning of the + & - symbols **K6** Vocabulary: forward, backward, length, measure, after, before, half, middle, between, left, order, right, greater than, less than, add, addition, count on, equation, strategies, sum, total, in all, count back, minus, plus, subtract, tens, long/longer/longest, longer than, measure, next to, short/shorter/shortest, shorter than, the same, compare, cent, graph, nickel, penny, NC: add, combinations, month, number, number tree, pattern, week, equal, estimate, estimation, least, less, more, most, ones, tens, ten-frame, parts, bottom, double, row top, digit, fewer, identify, larger, smaller, behind, beside, cone, cube, cylinder, forward, inside, in front of, on top of, sphere, three-dimensional (3-D) shape, two-dimensional (2-D) shape, under	**S3** Counting forward from a given number **S4** Counting backward from any number in the range of 10-1 **S5** Determining if a quantity is greater than, less than or equal to another quantity **S6** Adding with sums to 10 **S7** Identifying and determining the value of a penny and nickel