Unit C - *Leap Frogging*

Overview

This unit revolves around the number line, helping students visualize number relationships in order to count and calculate. Closed and open number lines are used both as models of our number system, as well as models for beginning operations with addition and subtraction. Numbers lines with both large scales (skip-count by 10s or 50s) and small scales (skip count by 1s or 5s) ranging to 120 are introduced. Students learn that addition and subtraction problems can be solved in different ways, each of which anchors on fundamental understandings of number. As students become confident with the placement of numbers on the number line, they begin to use the number line to solve story problems. Students use their understanding of number placement to compare two numbers with application to real world scenarios as they measure, compare, and order measurements of penguins, finding differences and writing inequality statements.

21st Century Capacities: Synthesizing , Product Creation

Stage 1 - Desired Results

ESTABLISHED GOALS/ STANDARDS

MP 1 Make Sense of Problems and Persevere in Solving Them
MP 4 Model with Mathematics
MP 7 Look for and Make Use of Structure

CCSS.MATH.CONTENT.1.OA.A.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.[1]

CCSS.MATH.CONTENT.1.OA.C.5 Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

CCSS.MATH.CONTENT.1.OA.C.6

Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 =$

Transfer:

Students will be able to independently use their learning in new situations to...

1. Create a model demonstrating patterns and relationships within a set of numbers to 120 (Product Creation)
2. Draw conclusions regarding numerical relationships to create a solution to a mathematical problem. (Synthesizing)

Meaning:

UNDERSTANDINGS: *Students will understand that:*	ESSENTIAL QUESTIONS: *Students will explore & address these recurring questions:*
1. Patterns exist in a set of numbers; 2. Known strategies can be applied to new problems; 3. Visual representations help	A. How can putting numbers on a line help me to understand addition and subtraction? B. How can I represent relationships between the numbers 0-120?

10 - 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 - 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13). CCSS.MATH.CONTENT.1.OA.D.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.	solve unknown problems.	C. What patterns emerge within a set of numbers? D. Does my solution make sense? E. What strategies can I use to solve this problem?

CCSS.MATH.CONTENT.1.NBT.A.1 Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral. CCSS.MATH.CONTENT.1.NBT.B.2.C The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones). CCSS.MATH.CONTENT.1.NBT.B.3 Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <. CCSS.MATH.CONTENT.1.NBT.C.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. CCSS.MATH.CONTENT.1.NBT.C.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. CCSS.MATH.CONTENT.1.NBT.C.6 Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	*Students will know…* 1. Patterns of adding and subtracting numbers in increments of 1, 2, 5, and 10. 2. How to apply known strategies to new problems. 3. How to manipulate and create an open and closed number line. 4. How to interpret and detect patterns from a given set of numbers to solve for the unknown. 5. <u>Vocabulary:</u> number line, scale, open, closed, tens, multiple, skip-jump, decade	*Students will be skilled at…* 1. Counting to 120, starting with any number less than 120; 2. Counting by 5's and 10's; 3. Recognizing the difference between an addition and subtraction problem; 4. Solving addition and subtraction problems by counting on and back; 5. Recognizing, describing and extending number patterns; 6. Creating a number line counting by varying numbers such as 1s, 5s, and 10s.

Acquisition:	