Scope and Sequence Exemplar: Math

Graduation Proficiency #1- **Number and Quantity** Reason, describe, and analyze quantitatively using units and number systems to solve problems.

K1. Know number names and the count sequence. Know how to write numbers from 0-20. (K.CC.A)	Students (I) know some of the number names and can almost count a sequence starting at 0. Students (I) can write some numbers.	Students (I) know number names and can correctly count the sequence 0-10. Students (I) can write some numbers 0-10.	I know number names and can correctly count a sequence starting from any number 0 - 20. Students (I) can write all the numbers from 0-20.	I know number names and can correctly count a sequence starting from any number. Students (I) can write numbers beyond 20.
1.1. Uses models, place value, and properties of operations to add and subtract within 100.	With an example, students (I) can use a copy of a model to add and subtract within 100.	Students (I) can use models to add and subtract within 100	Students (I) can use models, place value, and properties of operations to add and subtract within 100	Students (I) can use models, place value, and properties of operations to add and subtract within 100, including numbers that are not multiples of 10.
2.1. Understands place value. (2NBT.A)	Students (I) understand place value by naming the value of a digit in a number within 1000.	Students (I) understand place value because Students can count within 1000; skip-count by 5s, 10s, and 100s, **or** Students (I) can read and write numbers to 1000 using base-ten numerals, number names, and expanded form **or** compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.	Students (I) understand place value because Students can count within 1000; skip-count by 5s, 10s, and 100s, **and** Students (I) can read and write numbers to 1000 using base-ten numerals, number names, and expanded form **and** compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.	Students (I) understand place value because Students can compare any two whole numbers, round whole numbers to the nearest 10 or 100; fluently add and subtract within 1000 using strategies and algorithms based on place value.
3.1. Develop understanding of fractions as numbers. (3NF.A.1)	Students (I) can understand fractions as numbers using concrete models.	Students (I) can understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts OR Students (I) can identify fractions as numbers and can sometimes place them correctly on a number line diagram.	Students (I) can understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts AND Students (I) can identify fractions as numbers and can sometimes place them correctly on a number line diagram	Students (I) can talk about fractions as they relate to a real life scenario, and Students (I) can model how to solve problems that involve fractions
4.1. Generalize place value understanding for multi-digit whole numbers. (4NBT.A)	With support, Students (I) can identify the place value in multi-digit whole numbers.	Students (I) can recognize that there are patterns in the place value system in multi-digit whole numbers.	Students (I) can explain and generalize place value understanding for multi-digit whole numbers.	Students (I) can extend knowledge of place value to make sense of and solve problems involving decimal numbers.
5.1. Understand the place value system. (5NBT.A)	Students (I) can identify place value.	Students (I) can recognize that there are patterns in the place value system and that there are properties of operations.	Students (I) can explain the value of digits, based on their placement.	Students (I) can create and defend a different base system that exhibits the same properties as the base 10 system.
6. 1. Compute fluently with multi-digit numbers and find common factors and multiples. (6NS.A)	Students (I) can compute fluently with one-digit numbers, and explain the difference between a factor and a multiple.	Students (I) can use appropriate models to compute the sum, difference, product and quotient with multi-digit numbers and find common factors or multiples.	Students (I) can compute fluently (accurately, flexibly, and efficiently) with multi-digit numbers and can find common factors and multiples.	Students (I) can use multi-digit arithmetic to solve real world problems and can clearly explain mathematical reasoning.

7.1. Apply and extend previous understandings of operations with fractions. (7NS.A)	Students (I) can use rational numbers* to represent quantities in real-world contexts	Students (I) can construct a concrete and/or visual model to solve a problem involving operations on rational numbers*.	Students (I) can apply efficient strategies to solve real world problems involving operations on rational numbers*.	Students (I) can explain the underlying concepts of operations on rational numbers* by connecting multiple representations and/or by creating a real world model.
	* "rational numbers" to explicitly include negative values			

8.1.Know that there are numbers that are not rational, and approximate them by rational numbers. (8NS.A)	Students (I) can define irrational numbers.	Students (I) can give examples and non-examples of irrational numbers.	Students (I) knows that there are numbers that are not rational, and students (I) can approximate them by rational numbers.	Students (I) can find precise approximations of irrational numbers and students (I) can explain the patterns that exist when writing rational numbers as fractions.

9-12 Scoring Criteria- Proficiency #1				
	Does Not Meet Yet	Approaching	Proficiency	Exceeds
1. Reason quantitatively and use units to solve problems.(N.Q)	Students (I) can identify the appropriate units in a given context.	Students (I) can convert between common units of length, volume, weight, and time.	Students (I) can reason quantitatively and use units to solve problems, converting as appropriate.	Students (I) can critically analyze quantitatively in a context requiring multiple conversions.