PRINCETON INDEPENDENT SCHOOL DISTRICT	**Campus:** Harper/Lacy/Smith/Godwin/ Lowe	
Author(s): Warren, Stovall, Elsbury, Venters, Eaton, Garlington	**Date Created / Revised: July 30, 2020**	
Six Weeks Period: 1st	**Grade Level & Course: 5th grade math**	
Timeline: 5 days	**Unit Title: Cumulative TEKS- B.O.Y**	**Week 1**

Stated Objectives: TEK # and SE	**Problem Solving** 5.1A apply mathematics to problems arising in everyday life, society, and the workplace; 5.1B use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution; 5.1D communicate mathematical ideas, reasoning, including symbols, diagrams, graphs, and language as appropriate. 5.3(B) multiply with fluency a three-digit number by a two-digit number using the standard algorithm 5.3(C) solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm 5.3(K) add and subtract positive rational numbers fluently 5.4(B) represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity 5.4(F) simplify numerical expressions that do not involve exponents, including up to two levels of grouping **Skills** 5.4C generate a numerical pattern when given a rule in the form y=ax or y=x+a and graph 5.4D recognize the difference between additive and multiplicative numerical patterns given in a table or graph **Review** 5.2B represents the value of the digit in the whole numbers through the 1,000,000,000 and decimals to the hundredths using expanded notation and numerals. 5.2C round decimals to tenths or hundredths **Concept** Cumulative TEKS- B.O.Y. ELPS: http://www.teksresourcesystem.net/module/standards/Tools/Browse?StandardId=118094
See Instructional Focus Document (IFD) for TEK Specificity	
Key Understandings	The base-10 place value system is based on multiples of 10 where each place represents a relationship of 10 times the value of the place to its right and one-tenth of the value of the place to its left (decimals to the thousandths). What digits make up the base-10 place value system? What relationships can be found in the base-10 place value system?

	How does the place value change when moving to the right across the place value positions in a number? (e.g., How does the place value change when moving from the tenths place to the hundredths place to the thousandths place?) How does the place value change when moving to the left across the place value positions in a number? (e.g., How does the place value change when moving from the thousandths place to the hundredths place to the tenths place?) A digit's position within a number determines its value (decimals to the thousandths). How is the value of a digit within a number determined? (e.g., How is the value of the digit "4" determined in the number 632,125.847?) How is the value of a number determined using the position of the digits? (e.g., How is the value of 632,125.847 determined?) A number can vary in representation as long as the total value of each representation remains unchanged (decimals to the thousandths). What are some ways a number can be represented? Why can a number vary in representation but the value of the number stay the same? (e.g., Why do 8 tenths, 51 hundredths represent the same value as 85 tenths and 1 thousandth?) When comparing two numbers, the relationship between the numbers can be that of equality, meaning the two numbers are equal, or inequality, meaning one number is greater than or less than the other number (decimals to the thousandths). How is place value used to compare two numbers? (e.g., How is place value used to compare 836.72 and 836.795?) How can the comparison of two numbers be described and represented? (e.g., How can the comparison of 836.72 and 836.795 be described and represented?) Numbers can be ordered based on their numerical value (decimals to the thousandths). How is place value used to order a set of numbers? (e.g., How is place value used to order 836.72 and 836.795?) How are quantifying descriptors used to determine the order of a set of numbers? (e.g., How do the quantifying descriptors least to greatest or greatest to least determine the order of the numbers 836.72 and 836.795?) How can the order of a set of numbers be justified? (e.g., How can the order of the numbers 836.72 and 836.795 be justified?) Rounding numbers is an estimation strategy based on place value relationships and the relative size of numbers (decimals to the thousandths). How is place value used to round a decimal to the nearest tenth or hundredth? How does rounding a decimal number change its value relative to other numbers? When is it preferable to round to the nearest tenth rather than the nearest hundredth? When is it preferable to round to the nearest hundredth rather than the nearest tenth? Estimation is a strategy that can be used to approximate and determine reasonable solutions. What estimation strategies can be used to help solve computation problems? How do estimated solutions compare to the actual solution? Solving problems involving addition and subtraction fluently requires the efficient and accurate use of strategies and methods (positive rational numbers). When is addition needed to solve a problem? When is subtraction needed to solve a problem?

	How does the efficient and accurate use of strategies and methods aid in fluently solving addition and subtraction problems? When adding two non-zero positive rational numbers, the sum will always be larger than each of the addends. What generalization can be made about the sum of two non-zero positive rational numbers? When subtracting two non-zero positive rational numbers (with the minuend larger than the subtrahend), the difference will always be smaller than the minuend. What generalization can be made about the difference between two non-zero positive rational numbers (with the minuend larger than the subtrahend)? Numerical expressions can be simplified using the order of operations. What is the purpose of the order of operations? What is the order of operations? What is the process for simplifying a numeric expression?When comparing two numbers, the relationship between the numbers can be that of equality, meaning the two numbers are equal, or inequality, meaning one number is greater than or less than the other number Rounding numbers is an estimation strategy based on place value relationships and the relative size of numbers
Misconceptions	● Some students may think placing zeros at the end of a decimal number always affects the value of the number rather than being used as a place-holder (e.g., In 0.400, the zeros do not affect the value, but in 0.04, the zero in the tenths place does affect the value.). ● Some students may think you can only round certain numbers to a specific place value rather than being able to round to any given place value (e.g., The decimal number 34.25 can be rounded to the nearest tenths place, ones place, tens place, hundreds place, etc.). ● Some students may use the digit in the tenths place to determine how many boxes to shade in on a hundredths grid (e.g., shading in 8 of the 100 boxes for 0.8) rather than determining the value of the number written as hundredths (e.g., shading in 80 of the 100 boxes of 0.80). ● Some students may order decimals incorrectly by trying to relate whole number understandings to decimal understandings (e.g., 0.29 is greater than 0.6 because 29 is greater than 6) rather than using decimal place value understandings (e.g. 0.29 is less than 0.60). ● Some students may order decimals based on the number of digits in the number rather than determining its value (e.g. 0.123 is greater than 0.45 because 0.123 has three digits and 0.45 only has two digits.).
Key Vocabulary	● **Compare numbers** – to consider the value of two numbers to determine which number is greater or less or if the numbers are equal in value ● **Compatible numbers** – a method for estimating a group of numbers by slightly adjusting some or all of the numbers to allow for easy mental computation ● **Compensation** – a method for adjusting an estimate to draw closer to an exact calculation ● **Counting (natural) numbers** – the set of positive numbers that begins at one and increases by increments of one each time {1, 2, 3, ..., *n*}

- **Decimal number** – a number in the base-10 place value system used to represent a quantity that may include part of a whole and is recorded with a decimal point separating the whole from the part
- **Digit** – any numeral from 0 – 9
- **Estimation** – reasoning to determine an approximate value
- **Expanded form** – the representation of a number as a sum of place values (e.g., 985,156,789.782 as 900,000,000 + 80,000,000 + 5,000,000 + 100,000 + 50,000 + 6,000 + 700 + 80 + 9 + 0.7 + 0.08 + 0.002 or as 900,000,000 + 80,000,000 + 5,000,000 + 100,000 + 50,000 + 6,000 + 700 + 80 + 9 + $\frac{7}{10}$ + $\frac{8}{100}$ + $\frac{2}{1000}$)
- **Expanded notation** – the representation of a number as a sum of place values where each term is shown as a digit(s) times its place value (e.g., 985,156,789.782 as 9(100,000,000) + 8(10,000,000) + 5(1,000,000) + 1(100,000) + 5(10,000) +6(1,000) + 7(100) + 8(10) + 9 + 7(0.1) + 8(0.01) + 2 (0.001) or as 9(100,000,000) + 8(10,000,000) + 5(1,000,000) + 1(100,000) + 5(10,000) +6(1,000) + 7(100) + 8(10) + 9 + 7 ($\frac{1}{10}$) + 8($\frac{1}{100}$) + 2 ($\frac{1}{1000}$))
- **Expression** – a mathematical phrase, with no equal sign or comparison symbol, that may contain a number(s), an unknown(s), and/or an operator(s)
- **Fluency** – efficient application of procedures with accuracy
- **Front-end method** – a method for estimating a number in which the first digit of a number is retained and all remaining digits are changed to zero
- **Grouping symbols** – symbols to show a group of terms and/or expressions within a mathematical expression
- **Numeral** – a symbol used to name a number
- **Order numbers** – to arrange a set of numbers based on their numerical value
- **Order of operations** – the rules of which calculations are performed first when simplifying an expression
- **Place value** – the value of a digit as determined by its location in a number, such as ones, tens, hundreds, one thousands, ten thousands, etc.
- **Positive rational numbers** – the set of numbers that can be expressed as a fraction $\frac{a}{b}$, where *a* and *b* are counting (natural) numbers
- **Rounding** – a method for estimating a number by increasing or retaining a specific place value digit according to specific rules and changing all trailing digits to zero
- **Standard form** – the representation of a number using digits (e.g., 985,156,789.782)
- **Trailing zeros** – a sequence of zeros in the decimal part of a number that follow the last non-zero digit, and whether recorded or deleted, does not change the value of the number
- **Whole numbers** – the set of counting (natural) numbers and zero {0, 1, 2, 3, ..., *n*}
- **Word form** – the representation of a number using written words (e.g., 985,156,789.782 as nine hundred eighty-five million, one hundred fifty-six thousand, seven hundred eighty-nine and seven hundred eighty-two thousandths)

Related Vocabulary:

- About
- Approximately
- Ascending
- Base-10 place value system
- Brackets
- Descending
- Difference
- Equal to (=)
- Equivalent
- Estimate
- Hundredths
- Greater than (>)
- Less than (<)
- Magnitude

Suggested Day 5E Model	Instructional Procedures (Engage, Explore, Explain, Extend/Elaborate, Evaluate)	Materials, Resources, Notes
Day 1- Engage/ Explore	Warm-Up (2 problem solving problems) S-Use the problems from Skills 1 to teach multiplying by 10s. Model a place value chart for students to put into journal Discuss writing numbers in standard, word, and expanded notation. R-review 1 Activity 1-Review tenths	**From Sharon Wells Curriculum** ● **Problems solving 1A 1B** ● **Skills 1** ● **Place Value Chart** ● **Review 1**
Day 2 – Explain/ Extend	Warm-Up (2 problem solving problems) Use the problems from Skills 2 to teach multiplying by 100s. Review 2-writing numbers in number and expanded form. Activity 2-Review Hundredths	**From Sharon Wells Curriculum** ● **Skills 2** ● **Review 2** ● **Activity 2**
Day 3 - Extend	Warm-Up (2 problem solving problems) S-Have student complete problems from Skills 3 to practice measuring using inches. R- Review 3 writing numbers Activity 3-Introduce thousandths	**From Sharon Wells Curriculum** ● **Skills 3** ● **Review 3** ● **Activity 3**
Day 4 –Extend	Warm-Up (2 problem solving problems) S-Have student complete problems from Skills 4 to practice measuring using cm. R- complete review 4 Activity 4	**From Sharon Wells Curriculum** ● **Skills 4** ● **Review 4** ● **Activity 4**
Day 5-Evaluation	Go over Week 1 Test Taking Skills as a class. Students will complete Week 1 Assessment.	**From Sharon Wells** ● **Week 1 assessment**

Accommodations for Special Populations	**Accommodations for instruction will be provided as stated on each student's (IEP) Individual Education Plan for special education, 504, at risk, and ESL/Bilingual.**