Grade: 4 **Subject:** Mathematics	**Unit 11: Decimal Numbers**
Big Idea/Rationale:	• This unit's goal is to develop an understanding of decimal numbers by relating decimals to fractions and whole-number place values. Students use their understanding of addition and subtraction of whole numbers to add and subtract decimals. Number lines are used to emphasize equivalent fractions and decimals and explore the concept of rounding decimals. Students apply their understanding of rounding by estimating sums differences and recognizing situations that require "safe estimates".
Enduring Understanding (Mastery Objective):	Students will understand that: • Decimal numeration is just an extension of whole number numeration. • Place value can be used to compare and order numbers? • A decimal is another name for a fraction. • Each fraction, mixed number, and decimal can be associated with a unique point on the number line. • Information in a problem can often be shown using a picture or diagram to understand and solve the problem. • Rounding decimals is a process for finding the multiple of 0.1, 0.01, etc. closest to a given number • Techniques foe estimating calculations with whole numbers can also be used to estimate calculations with decimals. • Models and algorithms for adding or subtracting multi-digit decimals are just an extension of using models and algorithms for adding and subtracting whole numbers.
Essential Questions (Instructional Objective):	• What are some ways to represent decimals? • How do you compare decimals? • How can you write a fraction as a decimal? • How can you locate decimals and mixed numbers on a number line? • How can you draw a picture to solve a problem? • How do you round decimals and how can it be useful in the real world? • How can you estimate the sums and differences of decimals? • How can you add and subtract decimals?
Content (Subject Matter & Learning Objectives):	• Explore models of related fractions, decimals, and mixed numbers. Recognize equivalent tenths and hundredths. • Model decimal numbers in tenths and in hundredths. • Write and compare decimals in tenths and in hundredths. • Read, write, model, and compare decimal numbers. • Find and identify equivalent decimal numbers (such as 0.2 and 0.20). • Read and interpret decimal numbers present on a number line. • Round decimals in hundredths to the nearest tenth. • Round decimals in tenths to the nearest whole number.

	- Plot and estimate the positions of whole numbers, fractions, decimals, and mixed numbers on a number line. - Compare and order two or more decimal numbers. - Round decimals to the nearest hundredths, tenth, or whole number. Align decimal numbers and money amounts correctly in preparation for addition. - Add decimal numbers. - Align decimal numbers and money amounts correctly in preparation for subtraction. - Subtract decimal numbers. - Determine the values of coins and bills to compare and order amounts and to make change. - Extend patterns of decimal numbers. - Round decimal numbers for the purpose of making estimates. - Understand the need to make safe estimates in certain situations. Understand the relative size of decimal numbers. - Add and subtract decimal numbers to three places. - Estimate using fraction and decimal benchmarks. - Estimate fraction and decimal sums. - Solve a variety of problems using mathematical concepts and skills.
Standards	**4. NBT.A.1:** Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. **4.NF.A.2:** Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, <, and justify the conclusions, e.g., by using a visual fraction model. **4.NF.C.5:** Express a fraction with a denominator 10 as an equivalent fraction with denominator 100, use this technique to add two fractions with respective denominators 10 and 100. **4.NF.C.6:** Use decimal notation for fractions with denominators 10 or 100. **4.NF.C.7:** Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole number. Record the results of comparisons with symbols >, =, <, and justify the conclusions, e.g., by using a visual model. **4.MD.B.4:** Make a line plot to display a data set of measurements in fractions of a unit (1/2,1/4,1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. **Mathematical Practices**
Materials and Resources	Math Expressions, Student Journals, Manipulatives, Math themed literature, BrainPop, IXL Mathematics