URBANDALE COMMUNITY SCHOOL DISTRICT

Course Title:	**Fifth Grade Math**

Description: In fifth grade the content focuses on procedures, concepts, and applications in three critical areas:

- Developing fluency with addition and subtraction of fractions, and a basic understanding of multiplication and division of fractions.
- Developing fluency with whole number and decimal operations, extending division to two digit divisors, integrating decimals into the place value system, and developing understanding of operations with decimals to thousandths.
- Calculating volume of three-dimensional objects.

Number and Quantity

Reporting Topic	Grade Level Standards	Competency Statement
Adding and Subtracting Fractions	• Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. (5.NF.A.1) • Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. (5.NF.A.2)	Students will: • Add and Subtract mixed numbers and fractions in various situations
Multiplying and Dividing Fractions	• Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. (5.NF.B.3) • Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. (5.NF.B.4) • Interpret multiplication as scaling (resizing). (5.NF.B.5) • Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem. (5.NF.B.6)	Students will: • Multiply and divide mixed numbers and fractions in various situations.

	• Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. (5.NF.B.7)	
Decimal Concepts/Place Value	• Recognize that in a multi–digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. (5.NBT.A.1) • Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole–number exponents to denote powers of 10. (5.NBT.A.2) • Read, write, and compare decimals to thousandths. (5.NBT.A.3) • Use place value understanding to round decimals to any place. (5.NBT.A.4)	Students will: • Multiply and divide whole numbers and decimals using powers of ten

Operations and Algebra

Reporting Topic	**Grade Level Standards**	**Competency Statement**
Addition and Subtraction	• Add, subtract, multiply, and divide decimals to hundredths, 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. (5.NBT.B.7)	Students will: • Add and subtract decimals to hundredths
Multiplication and Division	• Fluently multiply multi-digit whole numbers using the standard algorithm. (5.NBT.B.5) • Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (5.NBT.B.6) • Add, subtract, multiply, and divide decimals to hundredths, 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. (5.NBT.B.7)	Students will: • Multiply and divide decimals to the nearest hundredths position

Expressions and Equations	• Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. (5.OA.A.1) • Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. (5.OA.A.2)	Students will: • Write and interpret numerical expressions using grouping symbols
Patterns	• Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. (5.OA.B.3)	Students will: • Write and compare two patterns given two rules and identify features of related patterns.
Geometry		
Reporting Topic	**Grade Level Standards**	**Competency Statement**
Geometric Shapes	• Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. (5.G.B.3) • Classify two-dimensional figures in a hierarchy based on properties. (5.G.B.4)	Students will: • Create hierarchies of two dimensional polygons based on their properties.
Coordinate System	• Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate). (5.G.A.1)	Students will: • Graph real world problems on a coordinate plane and interpret coordinate values

	• Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. (5.G.A.2)	
Volume	• Recognize volume as an attribute of solid figures and understand concepts of volume measurement. (5.MD.C.3) • Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. (5.MD.C.4) • Relate volume to the operations of multiplication and addition in order to solve real world and mathematical problems involving volume. (5.MD.C.5)	Students will: • Solve problems involving volume by applying the multiplication formulas of (B x h) or (l x w x h)

Measurement, Data, Statistics, and Probability

Reporting Topics	Grade Level Standards	Competency Statement
Measurement	• Convert among different–sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi–step, real world problems.(5.MD.A.1)	Students will: • Convert standard and metric measurements of length, capacity, and weight
Represent and Interpret Data	• Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. (5.MD.B.2)	Students will: • Interpret and solve problems involving information in line plots.