North Dakota Mathematics Standards

Grade 5

Adopted 2023

Fifth Grade

Math Attributes

Problem-Solving

P. Learners can develop and carry out a logical plan to problem-solve situations, reflect on the reasonableness of solutions, and explore alternate strategies with guidance. 5.MA.P

Connections

C. Learners can make connections and summarize related ideas using supporting evidence. 5.MA.C

Reasoning and Proof

R. Learners can reason logically based on experience and knowledge, citing evidence to support their reasoning and conclusions. 5.MA.R

Number and Operations

Counting and Cardinality

1. Read and write decimals to the thousandths including standard, word, and expanded forms. 5.NO.CC.1

Base Ten

1. Understand that in a multi-digit whole number, a digit in one place represents ten 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.NO.NBT.1
2. Compare two decimals to the thousandths place using symbols >, <, and =. Justify comparisons based on the value of the digits. 5.NO.NBT.2
3. Apply place value understanding to round decimals to any place. 5.NO.NBT.3
4. Multiply multi-digit whole numbers using strategies flexibly, including the algorithm. 5.NO.NBT.4
5. Use concrete models, drawings, place value strategies, properties of operations and/or relationships to add, subtract, and multiply decimals to hundredths. 5.NO.NBT.5
6. Find whole-number quotients and remainders with up to four-digit dividends and two-digit divisors using place value strategies. Show and justify the calculation by using equations, rectangular arrays, and/or area models. 5.NO.NBT.6
7. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10. 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.NO.NBT.7

Fractions

1. Generate equivalent forms of commonly used fractions and decimals (e.g., halves, fourths, fifths, tenths). 5.NO.NF.1
2. Explain why multiplying a given number by a fraction greater than one results in a product greater than the given number and explain why multiplying a given number by a fraction less than one results in a product smaller than the given number. 5.NO.NF.2
3. Solve authentic word problems by adding and subtracting fractions and mixed numbers with unlike denominators using visual fraction models and equations. 5.NO.NF.3
4. Solve authentic word problems by multiplying fractions and mixed numbers using visual fraction models and equations. 5.NO.NF.4

Algebraic Reasoning

Operations and Algebraic Thinking

1. Automatically multiply and divide through 12 x 12. 5.AR.OA.1
2. Analyze problems using the order of operations to solve and evaluate expressions while justifying thinking. 5.AR.OA.2
3. Write simple expressions that record calculations with numbers. Interpret numerical expressions without evaluating them. 5.AR.OA.3
4. Find factor pairs and multiples within the range of 1-100 while classifying numbers as prime or composite. 5.AR.OA.4
5. Generate two numerical patterns using two given rules and form ordered pairs consisting of corresponding terms from the two patterns. (Graphing on a coordinate plane). 5.AR.OA.5

Geometry and Measurement

Geometry

1. Classify two-dimensional figures in a hierarchy based on properties. 5.GM.G.1
2. Identify the x-coordinate and y-coordinate to graph and name points in the first quadrant of the coordinate plane. 5.GM.G.2
3. Form ordered pairs and graph points in the first quadrant on the coordinate plane to solve authentic word problems. 5.GM.G.3

Measurement

1. Generate conversions among different-sized standard measurement units within a given measurement system, both customary and metric systems. Use these conversions in solving multi-step, authentic word problems. 5.GM.M.1
2. Find the area and perimeter of a rectangle, including connected rectangular figures, with fractional side lengths. 5.GM.M.2
3. Recognize volume as an attribute of rectangular prisms and measure volume by counting unit cubes. 5.GM.M.3

Data, Probability, and Statistics

Data

1. Generate data and create line plots to display a data set of unit fractions (½, ¼, ⅛). Use grade-level operations for fractions to solve problems involving information presented in line plots. 5.DPS.D.1
2. Utilize graphs and diagrams to represent, analyze, and solve authentic word problems using information presented in one or more tables or line plots including whole numbers, fractions, and decimals. 5.DPS.D.2