Oregon Mathematics

Grade 5

Adopted 2021

Mathematical Practice Standards

1. **Make sense of problems and persevere in solving them.** MP.1
2. **Reason abstractly and quantitatively.** MP.2
3. **Construct viable arguments and critique the reasoning of others.** MP.3
4. **Model with mathematics.** MP.4
5. **Use appropriate tools strategically.** MP.5
6. **Attend to precision.** MP.6
7. **Look for and make use of structure.** MP.7
8. **Look for and express regularity in repeated reasoning** MP.8

Grade 5

Algebraic Reasoning: Operations

A. Write and interpret numerical expressions. 5.OA.A

   1. Write and evaluate numerical expressions that include parentheses. 5.OA.A.1
   2. Write expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. 5.OA.A.2

B. Analyze patterns and relationships. 5.OA.B

   3. Generate two numerical patterns using two given rules. Identify and analyze relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns and graph them on a coordinate plane. 5.OA.B.3

Numeric Reasoning: Base Ten Arithmetic

A. Understand the place value system. 5.NBT.A

1. 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
2. Use whole number exponents to denote powers of 10 and explain the patterns in placement of digits that occur when multiplying and/or dividing whole numbers and decimals by powers of 10. 5.NBT.A.2
3. Read, write, and compare decimals to thousandths. 5.NBT.A.3
4. Use place value understanding to round decimals to any place. 5.NBT.A.4

B. Perform operations with multi-digit whole numbers and with decimals to hundredths. 5.NBT.B

5. Fluently multiply multi-digit whole numbers using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations. 5.NBT.B.5
6. Use a variety of representations and strategies to find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors. 5.NBT.B.6
7. Use a variety of representations and strategies to add, subtract, multiply, and divide decimals to hundredths. Relate the strategy to a written method and explain the reasoning used. 5.NBT.B.7

Numeric Reasoning: Fractions

A. Use equivalent fractions as a strategy to add and subtract fractions. 5.NF.A

1. Add and subtract fractions with unlike denominators, including common fractions larger than one and mixed numbers. 5.NF.A.1
2. Solve problems in authentic contexts involving addition and subtraction of fractions with unlike denominators, including common fractions larger than one and mixed numbers. 5.NF.A.2

B. Apply and extend previous understandings of multiplication and division. 5.NF.B

3. Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve problems in authentic contexts involving division of whole numbers that result in answers that are common fractions or mixed numbers. 5.NF.B.3
4. Apply and extend previous understanding and strategies of multiplication to multiply a fraction or whole number by a fraction. Multiply fractional side lengths to find areas of rectangles, and represent fractional products as rectangular areas. 5.NF.B.4
5. Apply and extend previous understandings of multiplication and division to represent and calculate multiplication and division of fractions. Interpret multiplication as scaling (resizing) by comparing the size of products of two factors. 5.NF.B.5
6. Solve problems in authentic contexts involving multiplication of common fractions and mixed numbers. 5.NF.B.6
7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions, including solving problems in authentic contexts. 5.NF.B.7

Geometric Reasoning and Measurement

A. Graph points on the coordinate plane to solve real-world and mathematical problems. 5.GM.A

1. Graph and name coordinate points in the first quadrant using the standard (x, y) notation. Understand the coordinate points values represent the distance traveled along the horizontal x-axis and vertical y-axis. 5.GM.A.1
2. Represent authentic contexts and mathematical problems by graphing points in the first quadrant of the coordinate plane. Interpret the meaning of the coordinate values based on the context of a given situation. 5.GM.A.2

B. Classify two-dimensional figures into categories based on their properties. 5.GM.B

3. Classify two-dimensional figures within a hierarchy based on their geometrical properties, and explain the relationship across and within different categories of these figures. 5.GM.B.3

C. Convert like measurement units within a given measurement system. 5.GM.C

4. Convert between different-sized standard measurement units within a given measurement system. Use these conversions in solving multi-step problems in authentic contexts. 5.GM.C.4

D. Geometric measurement: understand concepts of volume. 5.GM.D

5. Recognize that volume is a measurable attribute of solid figures. 5.GM.D.5
6. Measure the volume of a rectangular prism by counting unit cubes using standard and nonstandard units. 5.GM.D.6
7. Relate volume of rectangular prisms to the operations of multiplication and addition. Solve problems in authentic contexts involving volume using a variety of strategies. 5.GM.D.7

Data Reasoning

A. Pose investigative questions and collect/consider data. 5.DR.A

1. Generate questions to investigate situations within the classroom, school or community. Determine strategies for collecting or considering data involving operations with fractions for this grade that can naturally answer questions by using information presented in line plots. 5.DR.A.1

B. Analyze, represent, and interpret data. 5.DR.B

2. Analyze graphical representations and describe the distribution of the numerical data through line plots or categorical data through bar graphs. Interpret information presented to answer investigative questions. 5.DR.B.2