

Mathematics Curriculum Outline Fourth Grade Parent Copy

The ultimate goal for mathematics learners is number literacy. A successful mathematics learner is able to use mathematical processes and procedures in order to participate in our highly technical society. Mathematics is used on a daily basis in the real world. Using money, measurements, and cooking are only a few of the ways we use mathematics in our society. Your child will become fluent in the use of mathematic processes and procedures by learning the specific Grade Level Content Expectations at each grade level.

4:1 Understand and use number notation and place value

- 1:A** The student will read and write numbers to 1,000,000; relate them to the quantities they represent; compare and order.
- 1:B** The student will compose and decompose numbers using place value to 1,000,000's.
- 1:C** The student will understand the magnitude of numbers up to 1,000,000; recognize the place values of numbers, and the relationship of each place value to the place to its right.

4:2 Use factors and multiples

- 2:A** The student will find all factors of a whole number up to 50, and list factor pairs.
- 2:B** The student will list the first ten multiples of a given one-digit whole number; determine if a whole number is a multiple of a given one-digit whole number and if a one-digit number is a factor of a given whole number.
- 2:C** The student will know that some numbers including 2, 3, 5, 7, and 11 have exactly two factors and are called prime numbers.
- 2:D** The student will solve problems about factors and multiples.

4:3 Add and subtract whole numbers

- 3:A** The student will add and subtract whole numbers fluently.

4:4 Multiply and divide whole numbers

- 4:A** The student will multiply two-digit numbers by 2, 3, 4, and 5, using the distributive property.
- 4:B** The student will multiply fluently any whole number by a one-digit number, and a three-digit number by a two-digit number; for a two-digit by one-digit multiplication, use distributive property to develop meaning for the algorithm.
- 4:C** The student will divide numbers up to four digits by one-digit numbers and by 10.

- 4:D** The student will find unknowns in equations such as $a \div 10 = 25$ and $125 \div b = 25$.
- 4:E** The student will use the relationship between multiplication and division to simplify computations and check results.
- 4:F** The student will solve applied problems involving whole number multiplication and division.

4:5 Read, interpret, and compare decimal fractions

- 5:A** The student will read and interpret decimals up to two decimal places; relate to money and place value decomposition.
- 5:B** The student will know that terminating decimals represent fractions whose denominators are 10, 10×10 , $10 \times 10 \times 10$, etc.
- 5:C** The student will locate tenths and hundredths on a number line.
- 5:D** The student will read, write, interpret, and compare decimals up to two decimal places.
- 5:E** The student will write tenths and hundredths in decimal and fraction forms, and know the decimal equivalents for halves and fourths.

4:6 Understand fractions

- 6:A** The student will understand fractions as parts of a set of objects.
- 6:B** The student will explain why equivalent fractions are equal, using models such as fraction strips or the number line, for fractions with denominators of 12 or less, or equal to 100.
- 6:C** The student will locate and compare fractions on the number line, including improper fractions and mixed numbers with denominators of 12 or less.
- 6:D** The student will understand the relationships among halves, fourths and eighths and among thirds, sixths and twelfths.
- 6:E** The student will know that fractions of the form where m/n , is greater than n , are greater than 1 and are called improper fractions; locate improper fractions on the number line; and express as mixed numbers.
- 6:F** The student will write improper fractions as mixed numbers, and understand that a mixed number represents the number of “wholes” and the part of a whole remaining.
- 6:G** The student will compare and order up to three fractions with denominators 2, 4, and 8, and 3, 6, and 12, including improper fractions and mixed numbers.

4:7 Add and subtract fractions

- 7:A** The student will add and subtract fractions less than 1 with denominators of 12 or less and including 100, in cases where the denominators are equal or when one denominator is a multiple of the other.
- 7:B** The student will solve fraction problems involving sums and differences for fractions where one denominator is a multiple of the other.
- 7:C** The student will solve for the unknown in equations such as: $\frac{1}{8} + x = \frac{5}{8}$ or $\frac{3}{4} - y = \frac{1}{2}$.

4:8 Multiply fractions by whole numbers

- 8:A** The student will multiply fractions by whole numbers, using repeated addition and area or array models.

4:9 Add and subtract decimal fractions

- 9:A** The student will use mathematical statements to represent problems that use addition and subtraction of decimals with up to two-digits; solve.
- 9:B** The student will add and subtract decimals up to two decimal places.

4:10 Multiply and divide decimal fractions

- 10:A** The student will multiply and divide decimals up to two decimal places by a one-digit whole number where the result is a terminating decimal.

4:11 Estimate

- 11:A** The student will estimate the answers to calculations involving addition, subtraction, or multiplication.
- 11:B** The student will know when approximation is appropriate and use it to check the reasonableness of answers; be familiar with common place-value errors in calculations.
- 11:C** The student will make appropriate estimations and calculations fluently with whole numbers using mental math strategies.
- 11:D** The student will solve contextual problems about perimeters of rectangles and areas of rectangular regions.

4:12 Problem-solving

12:A The student will solve applied problems using the four basic arithmetic operations for appropriate fractions, decimals, and whole numbers.

4:13 Measure using common tools and appropriate units

13:A The student will measure using common tools and select appropriate units of measure.

13:B The student will give answers to a reasonable degree of precision in the context of a given problem.

13:C The student will measure and compare integer temperatures in degrees.

13:D The student will measure surface area of cubes and rectangular prisms by covering and counting the area of the faces.

4:14 Convert measurement units

14:A The student will carry out the following conversions from one unit of measure to a larger or smaller unit of measure: meters to centimeters, kilograms to grams, liters to milliliters, hours to minutes, minutes to seconds, years to months, weeks to days, feet to inches, ounces to pounds using numbers that involve only simple calculations.

4:15 Use perimeter and area formulas

15:A The student will know and understand the formulas for perimeter and area of a square and a rectangle; calculate the perimeters and areas of these shapes and combinations of these shapes using the formulas.

15:B The student will find one dimension of a rectangle given the other dimension and its perimeter or area.

15:C The student will find the side of a square given its perimeter or area.

15:D The student will solve contextual problems about perimeter and area of squares and rectangles in compound shapes.

4:16 Understand right angles

16:A The student will identify right angles and compare angles to right angles.

4:17 Problem-solving

17:A The student will solve contextual problems about surface area.

4:18 Understand perpendicular, parallel, and intersecting lines

18:A The student will identify and draw perpendicular, parallel, and intersecting lines using a ruler and a tool or object with a square (90°) corner.

4:19 Identify basic geometric shapes and their components, and solve problems

19:A The student will identify basic geometric shapes including isosceles, equilateral and right triangles, and use their properties to solve problems.

19:B The student will identify and count the faces, edges, and vertices of basic three-dimensional geometric solids including cubes, rectangular prisms, and pyramids; and describe the shape of their faces.

4:20 Recognize symmetry and transformations

20:A The student will recognize plane figures that have line symmetry.

20:B The student will recognize rigid motion transformations (flips, slides, turns) of a two-dimensional object.

4:21 Represent and solve problems for given data

21:A The student will construct tables and bar graphs from given data.

21:B The student will order a given set of data, find the median, and specify the range of values.

21:C The student will solve problems using data presented in tables and bar graphs.