

Math Standards

Third Grade

Course Abilities

1. Be able to apply math knowledge and skills to a variety of purposes.

- A. Be able to use the four-step problem solving process (locate facts, identify questions, select operations, solve and label solution) and check for common sense.
- B. Be able to conduct research (locate, observe/gather, present).

Course Content

1. Compare and represent whole numbers up to 100,000 with an emphasis on place value and equality.

- A. Be able to read, write and represent whole numbers up to 100,000. Representations may include numerals, expressions with operations, words, pictures, number lines, and manipulatives such as bundles of sticks and base 10 blocks. Be able to read, write, and represent whole numbers up to 1000 using a variety of methods.
- B. Be able to use place value to describe whole numbers between 1000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones.
- C. Be able to find 10,000 more or 10,000 less than a given five-digit number. Find 1000 more or 1000 less than a given four- or five-digit. Find 100 more or 100 less than a given four- or five-digit number. Be able to use place value to describe whole numbers between 10 and 1000 in terms of hundreds, tens, and ones. Know that 100 is 10 tens, and 1000 is 10 hundreds.
- D. Be able to compare and order whole numbers up to 100,000.
- E. Be able to round numbers to the nearest 10,000, 1000, 100 and 10. Round up and round down to estimate sums and differences.
- F. Know and be able to apply the rules for rounding numbers.

2. Be able to readily recall addition and subtraction facts through 20 and multiplication to 10.

- A. Be able to use strategies/manipulatives to memorize facts.
- B. Be able to use basic facts in real-life situations.
- C. Be able to understand the relationship of numbers in a fact family.

3. Be able to regroup numbers up to 4 digits in addition and subtraction using standard algorithms.

- A. Be able to use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.

4. Be able to represent multiplication and division in various ways.

- A. Be able to represent multiplication facts by using a variety of approaches, such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line and skip counting. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.
- B. Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.
- C. Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties, the identity property of multiplication (1), and the zero property of multiplication (0).

5. Be able to understand meanings and uses of fractions in real-world and mathematical situations.

- A. Be able to read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.
- B. Be able to understand that the size of a fractional part is relative to the size of the whole.
- C. Be able to order and compare unit fractions and fractions with like denominators by using models and an understanding of the concept of numerator and denominator.

6. Be able to understand and apply basic Algebraic skills.

- A. Be able to create, describe, and apply single-operation input-output rules involving addition, subtraction, and multiplication to solve problems in various contexts.

For example: Describe the relationship between number of chairs and number of legs by the rule that the number of legs is four times the number of chairs.

- B. Be able to understand how to interpret number sentences involving multiplication and division basic facts and unknowns. Create real-world situations to represent number sentences.

For example: The number sentence $8 \times m = 24$ could be represented by the question "How much did each ticket to a play cost if 8 tickets totaled \$24?"

- C. Be able to use multiplication and division basic facts to represent a given problem situation using a number sentence. Use number sense and multiplication and division basic facts to find values for the unknowns that make the number sentences true.

For example: Find values of the unknowns that make each number sentence true

$$\begin{aligned}6 &= p \div 9 \\ 24 &= a \times b \\ 5 \times 8 &= 4 \times t.\end{aligned}$$

Another example: How many math teams are competing if there is a total of 45 students with 5 students on each team?

This situation can be represented by $5 \times n = 45$ or $\frac{45}{5} = n$ or $\frac{45}{n} = 5$.

7. Be able to use geometric attributes to describe and create shapes in various contexts.

- A. Be able to identify parallel and perpendicular lines in various contexts, and use them to describe and create geometric shapes, such as right triangles, rectangles, parallelograms and trapezoids.
- B. Be able to identify intersecting lines, rays, points, and line segments.
- C. Be able to sketch polygons with a given number of sides or vertices (corners), such as pentagons, hexagons and octagons.
- D. Be able to use half units when measuring distances
For example: Measure a person's height to the nearest half inch.
- E. Be able to find the perimeter of a polygon by adding the lengths of the sides.
- F. Be able to measure distances around objects.
- G. Be able to identify and match congruent figures and draw a line of symmetry.

8. Be able to use time, money, and measurement to solve real-world mathematical problems.

- A. Be able to tell time to the nearest minute on a digital and analog clock.
- B. Be able to tell time to the minute, using digital and analog clocks. Determine elapsed time to the minute.
For example: Your trip began at 9:50 a.m. and ended at 3:10 p.m. How long were you traveling?
- C. Be able to know relationships among units of time.
For example: Know the number of minutes in an hour, days in a week and months in a year.
- D. Be able to know the equivalence of various coins to the value of \$1.00
- E. Be able to make change up to one dollar in several different ways, including with as few coins as possible.
For example: A chocolate bar costs \$1.84. You pay for it with \$2. Give two possible ways to make change.
- F. Be able to Use an analog thermometer to determine temperature to the nearest degree in Fahrenheit and Celsius.
For example: Read the temperature in a room with a thermometer that has both Fahrenheit and Celsius scales. Use the thermometer to compare Celsius and Fahrenheit readings.

9. Be able to collect, organize, display, and interpret data. Use labels and a variety of scales and units in displays.

- A. Be able to collect, display and interpret data using frequency tables, bar graphs, picture graphs and number line plots having a variety of scales. Use appropriate titles, labels and units.

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