

## Mathematics | Grade 4

In Grade 4, students learn to multiply and divide multi-digit numbers. They also learn to work with fractions and decimals. (1) Students learn to multiply multi-digit numbers using the standard algorithm. They also learn to divide multi-digit numbers using the standard algorithm. (2) Students learn to multiply and divide fractions. They also learn to add and subtract fractions. (3) Students learn to multiply and divide decimals. They also learn to add and subtract decimals.

(1) Students learn to multiply multi-digit numbers using the standard algorithm. They also learn to divide multi-digit numbers using the standard algorithm. For example, students learn to multiply  $1,000,000$  by  $10$  and divide  $1,000,000$  by  $10$ . They also learn to multiply  $100$  by  $100$  and divide  $100$  by  $100$ . Students learn to multiply and divide fractions. For example, students learn to multiply  $\frac{1}{2}$  by  $\frac{1}{2}$  and divide  $\frac{1}{2}$  by  $\frac{1}{2}$ . They also learn to multiply and divide decimals. For example, students learn to multiply  $1.2$  by  $1.2$  and divide  $1.2$  by  $1.2$ .

(2) Students learn to multiply and divide fractions. They also learn to add and subtract fractions. For example, students learn to multiply  $\frac{1}{2}$  by  $\frac{1}{2}$  and divide  $\frac{1}{2}$  by  $\frac{1}{2}$ . They also learn to add  $\frac{1}{2}$  and  $\frac{1}{2}$  and subtract  $\frac{1}{2}$  from  $\frac{1}{2}$ . Students learn to multiply and divide decimals. For example, students learn to multiply  $1.2$  by  $1.2$  and divide  $1.2$  by  $1.2$ .

(3) Students learn to multiply and divide decimals. They also learn to add and subtract decimals. For example, students learn to multiply  $1.2$  by  $1.2$  and divide  $1.2$  by  $1.2$ . They also learn to add  $1.2$  and  $1.2$  and subtract  $1.2$  from  $1.2$ .

## Grade 4 Overview

### Operations and Algebraic Thinking

- Use the four operations with whole numbers to solve problems.
- Gain familiarity with factors and multiples.
- Generate and analyze patterns.

### Number and Operations in Base Ten

- Generalize place value understanding for multi-digit whole numbers.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.

### Number and Operations—Fractions

- Extend understanding of fraction equivalence and ordering.
- Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
- Understand decimal notation for fractions, and compare decimal fractions.

### Measurement and Data

- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
- Represent and interpret data.
- Geometric measurement: understand concepts of angle and measure angles.

### Geometry

- Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

### Mathematical Practices

1. Make a problem. Use a ruler to draw a line. Use a compass to draw a circle.
2. Read a problem. Write a plan. Solve the problem.
3. Check your work. Explain your answer. Use a calculator to check.
4. Monitor your progress. Adjust your strategy.
5. Use a variety of representations. Use a number line to solve.
6. Attend to precision. Use a protractor to draw an angle.
7. Look for regularity in repeated reasoning. Use a pattern to solve.
8. Look for structure. Use a formula to solve.



6. Find the product of  $\frac{2}{3}$  and  $\frac{3}{4}$ .  
 $\frac{2}{3} \times \frac{3}{4} = \frac{2 \times 3}{3 \times 4} = \frac{6}{12} = \frac{1}{2}$

**Number and Operations—Fractions<sup>3</sup> 4.NF**

**Extend understanding of fraction equivalence and ordering.**

- Explain why multiplying a fraction by  $\frac{a}{a}$  does not change its value. For example,  $\frac{2}{3} = \frac{2 \times 2}{3 \times 2} = \frac{4}{6}$ .
- Compare two fractions with different denominators by using a common denominator. For example,  $\frac{1}{2} > \frac{1}{3}$  because  $\frac{1}{2} = \frac{3}{6}$  and  $\frac{1}{3} = \frac{2}{6}$ .

**Build fractions from unit fractions by applying and extending**

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Understand decimal notation for fractions, and compare decimal fractions.

5. E 



6. Measure angles in degrees using a protractor. Sketch angles of a given degree measure.

