Unit 2: Multiplication & Division of Whole Numbers

**Standards:**

**4.OA.1** Understand that a multiplicative comparison is a situation in which one quantity is multiplied by a specified number to get another quantity. a. Interpret a multiplication equation as a comparison e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. b. Represent verbal statements of multiplicative comparisons as multiplication equations.
 **4.OA.2** Multiply or divide to solve word problems involving multiplicative comparison. Use drawings and equations with a symbol or letter for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. **4.OA.3** Solve multi-step word problems with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a symbol or letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
 **4.OA.4** Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.
 **4.OA.5** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. Explain informally why the pattern will continue to develop in this way. For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers.
 **4.NBT.5** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **4.NBT.6** Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Additional Resources:**

Graded Classwork & Quizzes

Handouts/Homework

Class Notes

**Textbook:**

**Chapter 3**

Lesson 3 pp. 147–152 Multiplication as Comparison

Lesson 4 pp. 153–158 Compare to Solve Problems

Lesson 5 pp. 161–166 Multiplication Properties and Division Rules

Lesson 7 pp. 173–178 Factors and Multiples

**Chapter 4**

​Lesson 1 pp. 197-202 Multiples of 10, 100, and 1,000

Lesson 3 pp. 209-214 Hands On: Use Place Value to Multiply

Lesson 4 pp. 215-220 Hands On: Use Models to Multiply

Lesson 5 pp. 223-228 Multiply by a Two-Digit Number

Lesson 6 pp. 229-234 Hands On: Model Regrouping

Lesson 7 pp. 235-240 The Distributive Property

Lesson 8 pp. 241-246 Multiply with Regrouping

Lesson 9 pp. 247-252 Multiply by a Multi-Digit Number

Lesson 11 pp. 261-266 Multiply Across Zeros

**Chapter 5**

Lesson 1 pp. 279-284 Multiply by Tens

Lesson 3 pp. 293-298 Hands On: Use the Distributive Property to Multiply

Lesson 4 pp. 299-304 Multiply by a Two-Digit Number

Lesson 5 pp. 305-310 Solve Multi-Step Word Problems

**Chapter 6**

Lesson 1 pp. 329-334 Divide Multiples of 10, 100, and 1,000

​Lesson 3 pp. 341-346 Hands On: Use Place Value to Divide

Lesson 5 pp. 353-358 Divide with Remainders

Lesson 6 pp. 359-364 Interpret Remainders

Lesson 7 pp. 367-372 Place the First Digit

Lesson 8 pp. 373-378 Hands-On: Distributive Property and Partial Quotients

Lesson 9 pp. 379-384 Divide Greater Numbers

Lesson 10 pp. 387-392 Quotients with Zeros

**Chapter 7**

Lesson 1 pp. 413-418 Nonnumeric Patterns

Lesson 2 pp. 419-424 Numeric Patterns

Lesson 5 pp. 439-444 Addition and Subtraction Rules

Lesson 6 pp. 445-450 Multiplication and Division Rules

**In this unit students will:**

● solve multi-step problems using the four operations

● use estimation to solve multiplication and division problems

● find factors and multiples

● identify prime and composite numbers

● generate patterns

**IXL:**

4.OA.1:

D.2 [Multiplication facts up to 12: find the missing factor](https://www.ixl.com/math/grade-4/multiplication-facts-up-to-12-find-the-missing-factor)

D.9 [Properties of multiplication](https://www.ixl.com/math/grade-4/properties-of-multiplication)

F.9 [Write numerical expressions](https://www.ixl.com/math/grade-4/write-numerical-expressions)

4.OA.2:

D.14 [Estimate products: word problems](https://www.ixl.com/math/grade-4/estimate-products-word-problems)

D.19 [Multiply a 2-digit number by a 2-digit number: word problems](https://www.ixl.com/math/grade-4/multiply-a-2-digit-number-by-a-2-digit-number-word-problems)

D.23 [Multiply a 2-digit number by a larger number: word problems](https://www.ixl.com/math/grade-4/multiply-a-2-digit-number-by-a-larger-number-word-problems)

D.25 [Multiply numbers ending in zeroes: word problems](https://www.ixl.com/math/grade-4/multiply-numbers-ending-in-zeroes-word-problems)

E.2 [Division facts to 12: word problems](https://www.ixl.com/math/grade-4/division-facts-to-12-word-problems)

E.9 [Divide larger numbers by 1-digit numbers: word problems](https://www.ixl.com/math/grade-4/divide-larger-numbers-by-1-digit-numbers-word-problems)

E.19 [Divide numbers ending in zeroes by multi-digit numbers: word problems](https://www.ixl.com/math/grade-4/divide-numbers-ending-in-zeroes-by-multi-digit-numbers-word-problems)

E.22 [Divide by 2-digit numbers: word problems](https://www.ixl.com/math/grade-4/divide-by-2-digit-numbers-word-problems)

E.24 [Divide larger numbers by 2-digit numbers: word problems](https://www.ixl.com/math/grade-4/divide-larger-numbers-by-2-digit-numbers-word-problems)

F.2 [Addition, subtraction, multiplication, and division word problems](https://www.ixl.com/math/grade-4/addition-subtraction-multiplication-and-division-word-problems)

F.3 [Estimate sums, differences, products, and quotients: word problems](https://www.ixl.com/math/grade-4/estimate-sums-differences-products-and-quotients-word-problems)

M.8 [Price lists with multiplication](https://www.ixl.com/math/grade-4/price-lists-with-multiplication)

N.14 [Compare customary units by multiplying](https://www.ixl.com/math/grade-4/compare-customary-units-by-multiplying)

N.19 [Convert between metric and customary units](https://www.ixl.com/math/grade-4/convert-between-metric-and-customary-units)

4.OA.3:

A.6 [Rounding](https://www.ixl.com/math/grade-4/rounding)

D.27 Multiply three or more numbers: word problems

E.7 [Divide 2-digit numbers by 1-digit numbers: interpret remainders](https://www.ixl.com/math/grade-4/divide-2-digit-numbers-by-1-digit-numbers-interpret-remainders)

E.11 [Divide larger numbers by 1-digit numbers: interpret remainders](https://www.ixl.com/math/grade-4/divide-larger-numbers-by-1-digit-numbers-interpret-remainders)

F.3 [Estimate sums, differences, products, and quotients: word problems](https://www.ixl.com/math/grade-4/estimate-sums-differences-products-and-quotients-word-problems)

F.4 [Multi-step word problems](https://www.ixl.com/math/grade-4/multi-step-word-problems)

F.5 [Word problems with extra or missing information](https://www.ixl.com/math/grade-4/word-problems-with-extra-or-missing-information)

F.6 Solve word problems using guess-and-check

F.7 Choose numbers with a particular sum, difference, product, or quotient

G.2 [Write variable expressions: word problems](https://www.ixl.com/math/grade-4/write-variable-expressions-word-problems)

G.5 [Write variable equations to represent word problems](https://www.ixl.com/math/grade-4/write-variable-equations-to-represent-word-problems)

K.1 [Find two numbers based on sum and difference](https://www.ixl.com/math/grade-4/find-two-numbers-based-on-sum-and-difference)

K.2 [Find two numbers based on sum, difference, product, and quotient](https://www.ixl.com/math/grade-4/find-two-numbers-based-on-sum-difference-product-and-quotient)

4.OA.4:

A.5 [Prime and composite numbers](https://www.ixl.com/math/grade-4/prime-and-composite-numbers)

E.16 [Divisibility rules: word problems](https://www.ixl.com/math/grade-4/divisibility-rules-word-problems)

E.15 [Divisibility rules](https://www.ixl.com/math/grade-4/divisibility-rules)

D.20 [Choose numbers with a particular product](https://www.ixl.com/math/grade-4/choose-numbers-with-a-particular-product)

D.4 [Identify factors](https://www.ixl.com/math/grade-4/identify-factors)

D.3 [Choose the multiples of a given number up to 12](https://www.ixl.com/math/grade-4/choose-the-multiples-of-a-given-number-up-to-12) [​](https://www.ixl.com/math/grade-4/prime-and-composite-numbers)

4.NBT.5:

D.5 [Multiply 1-digit numbers by 2-digit numbers](https://www.ixl.com/math/grade-4/multiply-1-digit-numbers-by-2-digit-numbers)

D.6 [Multiply 1-digit numbers by 3-digit or 4-digit numbers](https://www.ixl.com/math/grade-4/multiply-1-digit-numbers-by-3-digit-or-4-digit-numbers)

D.8 [Multiplication patterns over increasing place values](https://www.ixl.com/math/grade-4/multiplication-patterns-over-increasing-place-values)

D.9 [Properties of multiplication](https://www.ixl.com/math/grade-4/properties-of-multiplication)

D.10 [Distributive property: find the missing factor](https://www.ixl.com/math/grade-4/distributive-property-find-the-missing-factor)

D.11 [Multiply using the distributive property](https://www.ixl.com/math/grade-4/multiply-using-the-distributive-property)

D.17 [Multiply a 2-digit number by a 2-digit number: complete the missing steps](https://www.ixl.com/math/grade-4/multiply-a-2-digit-number-by-a-2-digit-number-complete-the-missing-steps)

D.18 [Multiply a 2-digit number by a 2-digit number](https://www.ixl.com/math/grade-4/multiply-a-2-digit-number-by-a-2-digit-number)

D.24 [Multiply numbers ending in zeroes](https://www.ixl.com/math/grade-4/multiply-numbers-ending-in-zeroes)

4.NBT.6:

E.3 [Properties of division](https://www.ixl.com/math/grade-4/properties-of-division)

E.13 [Divide numbers ending in zeroes by 1-digit numbers](https://www.ixl.com/math/grade-4/divide-numbers-ending-in-zeroes-by-1-digit-numbers)

E.10 [Divide larger numbers by 1-digit numbers: complete the table](https://www.ixl.com/math/grade-4/divide-larger-numbers-by-1-digit-numbers-complete-the-table)

E.8 [Divide larger numbers by 1-digit numbers](https://www.ixl.com/math/grade-4/divide-larger-numbers-by-1-digit-numbers)

E.6 [Divide 2-digit numbers by 1-digit numbers: complete the table](https://www.ixl.com/math/grade-4/divide-2-digit-numbers-by-1-digit-numbers-complete-the-table)

E.5 [Divide 2-digit numbers by 1-digit numbers: word problems](https://www.ixl.com/math/grade-4/divide-2-digit-numbers-by-1-digit-numbers-word-problems)

E.4 [Divide 2-digit numbers by 1-digit numbers](https://www.ixl.com/math/grade-4/divide-2-digit-numbers-by-1-digit-numbers)