

## 4.OA Operations and Algebraic Thinking

- **4.OA.A Use the four operations with whole numbers to solve problems.**
  - **4.OA.A.1 Interpret a multiplication equation as a comparison, e.g., interpret  $35 = 5 \times 7$  as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.**
    - [Compare numbers using multiplication \(4-D.10\)](#)
  - **4.OA.A.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.**
    - [Compare numbers using multiplication: word problems \(4-D.11\)](#)
    - [Multiply 1-digit numbers by 2-digit numbers: word problems \(4-D.\)](#)
    - [Multiply 1-digit numbers by 3-digit or 4-digit numbers: word problems \(4-D.\)](#)
    - [Comparison word problems: addition or multiplication? \(4-F.2\)](#)
  - **4.OA.A.3 Solve multi-step word problems posed 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 letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.**
    - [Estimate products word problems: identify reasonable answers \(4-D.31\)](#)
    - [Divide 2-digit numbers by 1-digit numbers: interpret remainders \(4-E.14\)](#)
    - [Divide larger numbers by 1-digit numbers: interpret remainders \(4-E.20\)](#)
    - [Word problems with extra or missing information \(4-F.6\)](#)
    - [Multi-step word problems involving subtraction \(4-F.8\)](#)
    - [Multi-step word problems with strip diagrams \(4-F.9\)](#)
    - [Multi-step word problems \(4-F.11\)](#)
    - [Multi-step word problems involving remainders \(4-F.12\)](#)
    - [Multi-step word problems: identify reasonable answers \(4-F.13\)](#)
    - [Write variable equations to represent word problems \(4-G.4\)](#)
    - [Multi-step addition word problems \(4\)](#)
    - **4.OA.A.3.a Know multiplication facts and related division facts through  $12 \times 12$ .**
      - [Multiplication facts to 12 \(4-D.4\)](#)
      - [Multiplication facts up to 12: find the missing factor \(4-D.5\)](#)
      - [Division facts to 12 \(4-E.3\)](#)
      - [Division facts to 12: word problems \(4-E.4\)](#)
- **4.OA.B Gain familiarity with factors and multiples.**
  - **4.OA.B.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.**

- [Prime and composite: up to 20 \(4-A.18\)](#)
  - [Prime and composite: up to 100 \(4-A.19\)](#)
  - [Choose the multiples of a given number up to 10 \(4-D.3\)](#)
  - [Identify factors \(4-D.7\)](#)
  - [Choose numbers with a particular product \(4-D.8\)](#)
  - [Find all the factor pairs of a number \(4-D.9\)](#)
- **4.OA.C Generate and analyze patterns.**
    - **4.OA.C.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.**
      - [Find the next shape in a pattern \(4-K.1\)](#)
      - [Make a repeating pattern \(4-K.3\)](#)
      - [Use a rule to complete a number pattern \(4-K.5\)](#)
      - [What is true about the given pattern? \(4-K.6\)](#)
      - [What is true about the pattern made by the rule? \(4-K.7\)](#)
      - [Identify mistakes in number patterns \(4-K.8\)](#)
      - [Shape patterns \(4-K.13\)](#)