

Vertical Progression:

2nd Grade	<p>2.OA.C Work with equal groups of objects to gain foundations for multiplication.</p> <ul style="list-style-type: none"> ○ 2.OA.C.3 Determine whether a group of objects (up to 20) has an even or odd number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends. ○ 2.OA.C.4 Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.
3rd Grade	<p>3.OA.A Represent and solve problems involving addition and subtraction.</p> <ul style="list-style-type: none"> ○ 3.OA.A.1 Interpret products of whole numbers, e.g. interpret 5×7 as the total number of objects in 5 groups of 7 objects each. ○ 3.OA.A.2 Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. <i>For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.</i> ○ 3.OA.A.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = \square \div 3$, $6 \times 6 = ?$.</i>
4th Grade	<p>4.OA.B Gain familiarity with factors and multiples.</p> <ul style="list-style-type: none"> ○ 4.OA.B.4 Find all factor pairs for a whole number in the range 1 – 100. Recognize that a whole number is 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.
6th Grade	<p>6.NS.B Compute fluently with multi-digit numbers and find common factors and multiples.</p> <ul style="list-style-type: none"> ○ 6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. <i>For example, express $36 + 8$ as $4(9 + 2)$.</i>

Students will demonstrate command of the ELG by:

- Defining factors and multiples and listing the factor pairs of any number between 1 and 100.
- Defining prime and composite numbers and determining if a number is prime or composite.
- Creating a factorization model.
- Recognizing that a whole is a multiple of each of its factors.

Vocabulary:

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| <ul style="list-style-type: none"> • composite • divide • factor • factor pairs | <ul style="list-style-type: none"> • multiple • multiply • prime |
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Sample Instructional/Assessment Tasks:

1) Standard: 4.OA.B.4

Source: <https://grade4commoncoremath.wikispaces.hcps.org/Assessing+4.OA.4>

Item Prompt:

Jason and Laura were at the soccer game. Jason told Laura that his two daughters, Penny and Lily, were celebrating birthdays that week. He didn't tell Laura how old they were. Instead, he gave Laura these clues about their ages:

- Each of their ages is a factor of 24
- 36 is a multiple of both Penny's age and Lily's age.
- 30 is a multiple of Lily's age, but not Penny's age.
- The sum of their ages is 14.

Use Jason's clues, the chart, and the space below to help figure out what Penny and Lily's ages are.

Penny	Lily	SUM

Identify Penny and Lily's ages and explain how you figured out how old the girls are.

Correct Answer: Penny is 12 and Lily is 2.

2) Standard: 4.OA.B.4

Source: <https://grade4commoncoremath.wikispaces.hcps.org/Assessing+4.OA.4>

Item Prompt:

Javier says that all odd numbers greater than 2 and less than 20 are prime. Find an odd number greater than 2 and less than 20 that is not prime. Explain why the number is not prime.

Correct Answer: 9 is not prime because 9 divided by 3 is 3 or 15 because 3 and 5 are factors of 15.