# Unit 1 Family Support Materials

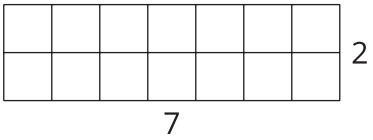
# Factors and Multiples

In this unit, students learn about factors and multiples and apply their understanding of the area of a rectangle. Students determine if a number between 1 and 100 is prime or composite.

## Section A: Understand Factors and Multiples

In this section, students learn about the meanings of "factor" and "multiple" by relating them to the concept of area. They use square tiles to build rectangles with given lengths and widths. Then they find the areas of the rectangles.

For example, this rectangle has an area of 14 square units, with side lengths of 7 units and 2 units.




We can say that 7 and 2 are a factor pair of 14, and that $7 \times 2 = 14$.

We also can say that 14 is a multiple of 7 and a multiple of 2.

Students discover that some numbers have many factor pairs and others have only one possible factor pair. They decide if a number is prime or composite, based on how many rectangles can be made with that number as the area.

## Section B: Find Factor Pairs and Multiples

In this section, students apply what they learned about factors and multiples to play games and solve problems in different contexts. Through the tasks, students look for patterns with factors and multiples. They find all of the factor pairs of a whole number between 1 and 100. They also decide if a whole number within 100 is a multiple of a given one-digit number.

## Try it at home!

Near the end of the unit, ask your fourth grader to complete the statements for each number and then to explain their reasoning.

| number | factor | multiple |
|---|---|---|
| 5 | _____ is a factor of _____ because . . . . | _____ is a multiple of _____ because . . . . |
| 18 | _____ is a factor of _____ because . . . . | _____ is a multiple of _____ because . . . . |

Questions that may be helpful as they work:

- How did you know this was a factor of that number?
- How did you know this was a multiple of that number?
- How are factors related to multiples?
- Is the number prime or composite? How do you know?

Solution:

Answers may vary.

Sample responses:

- 5 is a factor of 20 because $4 \times 5 = 20$.
- 5 is a multiple of 1 because $1 \times 5 = 5$.
- 18 is a factor of 36 because $18 \times 2 = 36$.
- 18 is a multiple of 6 because $6 \times 3 = 18$.
- 5 is prime because it only has one factor pair, 1 and 5.
- 18 is composite because it has more than one factor pair, 1 and 18, 2 and 9, 3 and 6.


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