Unit 1, Lesson 3

# Prime and Composite Numbers

Let's identify prime and composite numbers.

Activity 1

## Card Sort: Area

Your teacher will give you a set of cards that show rectangles.

1. Sort the cards into categories in a way that makes sense to you. Be ready to explain the meaning of your categories.
2. Group the cards into rectangles that have the same area. Be ready to explain your reasoning.
3. For each group of cards that have the same area, think of at least one more rectangle. Record its length and width. Be prepared to explain your reasoning.





Activity 2

## Prime or Composite?

The table shows different areas. How many rectangles with whole-number side lengths can be made for each area?

Complete the table.

Rectangles with the same pair of side lengths should be counted only once. For example, if you count a rectangle with 4 units across and 6 units down, you don't need to also count a rectangle with 6 units across and 4 units down.

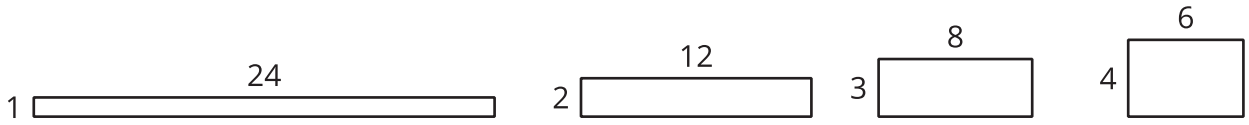
| area (square units) | how many rectangles? | prime or composite? |
|---|---|---|
| 2 | | |
| 10 | | |
| 48 | | |
| 11 | | |
| 21 | | |
| 23 | | |
| 60 | | |
| 32 | | |
| 42 | | |
| 31 | | |
| 56 | | |

## Section A Summary

We used our understanding of the area of rectangles to learn about factors, multiples, factor pairs, prime numbers, and composite numbers.

If we know the side length of a rectangle, we can find the areas that the rectangle could have. For instance, a rectangle with a side length of 3 could have an area of 3, 6, 9, 12, 15, or other numbers that result from multiplying 3 by a whole number. We call these numbers **multiples** of 3.

If we know the area of a rectangle, we can find the side lengths that it could have. For example, a rectangle with an area of 24 square units could have side lengths of 1 and 24, 2 and 12, 3 and 8, or 4 and 6. We call these pairs of side lengths the **factor pairs** of 24.




We also learned that a number that has only one factor pair—1 and the number itself—is called a **prime number**. For instance, 5 is prime because its only factor pair is 1 and 5.

A number that has two or more factor pairs is a **composite number**. For instance, 15 is composite because its factor pairs are 1 and 15, and 3 and 5.