

# Factors and Multiples: The Building Blocks of Numbers

KS3 Ages 11-14 ⌚ 3 min read

## What Are Factors?

A **factor** is a number that divides evenly into another number with no remainder. For example, the factors of **12** are **1, 2, 3, 4, 6,** and **12** itself. This is because each of these numbers divides perfectly into **12**:  $12 \div 2 = 6$ ,  $12 \div 3 = 4$ , and so on.

Think of it like sharing sweets fairly. If you have **12 sweets** and want to share them equally among friends, factors tell you the different group sizes that work perfectly. You could share equally among **2** friends (getting **6** each), **3** friends (getting **4** each), or **4** friends (getting **3** each).

Every whole number has at least two factors: **1** and itself. Some numbers, called **prime numbers**, have only these two factors. **7** is prime because nothing except **1** and **7** divides into it.

## What Are Multiples?

A **multiple** is what you get when you multiply a number by another whole number. The multiples of **5** are **5, 10, 15, 20, 25, 30**—and so on forever. You make them by counting in steps:  $5 \times 1 = 5$ ,  $5 \times 2 = 10$ ,  $5 \times 3 = 15$ .

Think of it like stairs. If each step is worth **5 points**, then climbing **1** step gets you **5** points, **2** steps gets you **10** points, **3** steps gets you **15** points. These are all multiples of **5**.

## How Are They Connected?

Factors and multiples are opposites. If **3** is a factor of **12**, then **12** is a multiple of **3**. They describe the same relationship from different directions.

## Why Do They Matter?

**Factors** and **multiples** help us solve everyday problems. Finding the **greatest common factor (GCF)** helps us simplify fractions:  $\frac{6}{9}$  becomes  $\frac{2}{3}$  because **3** is the

largest number dividing both. Finding the **least common multiple (LCM)** helps when adding fractions with different denominators, and it's useful for scheduling—like finding when two buses arrive at the same stop on the same day.

Understanding these concepts builds the foundation for algebra, problem-solving, and real-world maths you'll use forever.