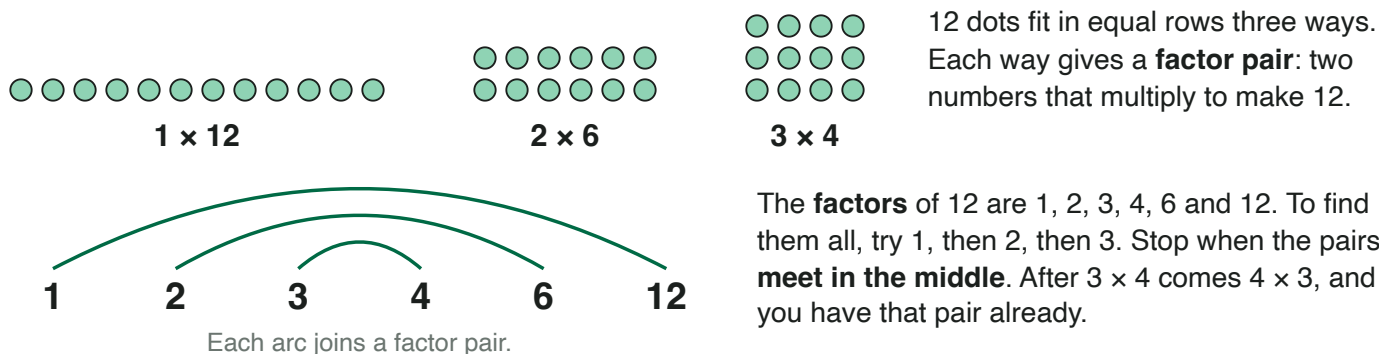


How Factors and Multiples Work

Four words to know: factor, multiple, prime and composite.

1. Factors multiply to make a number



2. Multiples are what you get when you count by a number



Factor or multiple?

$$\begin{array}{ccc} \mathbf{3} & \times & \mathbf{4} & = & \mathbf{12} \\ \text{factors} & & & & \text{multiple} \end{array}$$

3 is a factor of 12. 12 is a multiple of 3. Both say the same thing: 3 goes into 12 with nothing left over.

A factor is never bigger than the number. A multiple is never smaller than the number.

3. Prime and composite

Prime: 7



7 makes only one array, a single row. A prime number has **exactly two factors**: 1 and itself.

Composite: 8



8 makes two arrays. Factors: 1, 2, 4, 8. A composite number has **more than two factors**.

Two special numbers

1 is neither. It has only one factor.

2 is the only even prime. Every other even number has 2 as a factor, so it is composite.

Quick ways to spot a factor

Is the number even? Then 2 is a factor. 34 is even: $2 \times 17 = 34$.

Does it end in 0 or 5? Then 5 is a factor. 45 ends in 5: $5 \times 9 = 45$.

Do you know a multiplication fact for it? $7 \times 8 = 56$, so 7 and 8 are factors of 56.

Watch out

Do not mix up the two words. Factors of 10: 1, 2, 5, 10. Multiples of 10: 10, 20, 30, 40 and on.

Not every odd number is prime. $9 = 3 \times 3$, $15 = 3 \times 5$ and $21 = 3 \times 7$ are all composite.

Do not forget 1 and the number itself. They are factors of every number.