Understanding Exponents: Small Numbers with Big Power

KS3 MATHS NUMBER Ages 11-14 ⏰ 3 min read

What Is That Small Floating Number?

When you see a small number floating above another number, like 3^2 or 5^4, that's called an **exponent** (or **power**). It tells you something important: how many times to multiply the bigger number by itself.

For example, $\mathbf{3^2}$ doesn't mean 3 + 2. It means **3 × 3**, which equals **9**. The small **2** (called the exponent) is like a set of instructions that says: "multiply 3 by itself 2 times."

Think of it like a recipe that tells you to double something. If you double the recipe **2** times, you end up with **4 times** the original amount. The exponent is your instruction counter.

How Do We Use Exponents?

Mathematicians invented exponents to write things more simply. Imagine trying to write **2 × 2 × 2 × 2 × 2**. That's annoying! Instead, we write $\mathbf{2^5}$, which is much cleaner. The small **5** tells you "multiply 2 by itself 5 times."

Here are some real examples:

$\mathbf{2^3 = 2 \times 2 \times 2 = 8}$

$\mathbf{10^2 = 10 \times 10 = 100}$

$\mathbf{4^3 = 4 \times 4 \times 4 = 64}$

Think of it like stacking boxes. If you stack **3** boxes on top of each other, that's one thing. But if you want to show **3 stacks of 3 boxes**, that's 3^2, or **9** boxes total. The small number tells you how many times to repeat the action.

Why Are Exponents Useful?

Exponents help us write very large or very small numbers without filling up a whole page. Scientists use them all the time. For instance, the number **1,000,000,000** (one billion) can be written as $\mathbf{10^9}$. That's much shorter!

Exponents also help us understand growth. If you save money and it doubles every year, after **10** years you'd have $\mathbf{2^{10}}$ times what you started with. That's **1,024** times your original amount—a lot of growth!

The Bottom Line

That small floating number is an **exponent**, a shorthand way to show multiplication. It tells you how many times to multiply a number by itself. Once you understand what it means, exponents become a super-useful maths tool.