Finding the Pattern in Number Sequences

KS2 MATHS Ages 9-12 ⏰ 3 min read

What is a Number Sequence?

A **number sequence** is a list of numbers that follow a special pattern or rule. When you understand the rule, you can predict what comes next. Number sequences appear everywhere—in nature, music, technology, and everyday life.

Think about counting: **1, 2, 3, 4, 5**. Each number is **1 more** than the one before. That's a sequence, and the rule is simple: add **1** each time.

Think of it like a recipe. If the recipe says "add one egg each time," you know exactly what to do next. Number sequences work the same way—once you know the rule, you can keep going forever.

How to Spot the Pattern

The first step is to look at the **difference** between each number. Take this sequence: **2, 5, 8, 11, 14**. What's the gap between each number?

From **2 to 5** is **+3**. From **5 to 8** is **+3**. From **8 to 11** is **+3**. So the rule is: add **3** each time. The next number would be **14 + 3 = 17**.

Sometimes the difference changes. Look at: **1, 2, 4, 8, 16**. Here, each number is **doubled** (multiplied by **2**). The next number would be **16 × 2 = 32**.

Think of it like climbing stairs. Some stairs have steps of the same size (like always going up by 3). Other sequences are like jumping—you might double your distance each time.

Common Sequence Types

Arithmetic sequences add or subtract the same number each time. Examples: **10, 20, 30, 40** (add **10**) or **100, 90, 80, 70** (subtract **10**).

Geometric sequences multiply or divide by the same number each time. Examples: **2, 6, 18, 54** (multiply by **3**) or **64, 32, 16, 8** (divide by **2**).

Fibonacci sequences are special—each number is the sum of the two before it: **1, 1, 2, 3, 5, 8, 13**. You add the last two numbers to get the next one.

Tips for Success

Always write down the differences between numbers. Look for multiplication or division patterns. Check your answer by testing if the rule works backwards. Don't assume the first difference you find is correct—sometimes the pattern is more complex. With practice, spotting these patterns becomes easier and faster!