

Understanding Number Sequences and Finding Patterns

KS3 Ages 11-14 ⌚ 3 min read

What is a Number Sequence?

A **number sequence** is a list of numbers that follow a special rule or pattern. Each number in the sequence is called a **term**. The numbers appear in a specific order, and if you understand the rule, you can predict what comes next.

For example, **2, 4, 6, 8, 10** is a number sequence. Each number is **2** more than the one before it. Once you spot this pattern, you know the next number will be **12**.

Think of it like a recipe. Just as a recipe has steps you follow in order to make a cake, a number sequence has rules you follow to make a list of numbers. If you know the recipe, you can keep baking the same cake again and again.

How to Find the Pattern

Finding a pattern in a number sequence takes practice, but there are simple steps you can follow. First, look at the **difference** between each pair of numbers. Subtract the first number from the second, the second from the third, and so on.

Let's try **5, 10, 15, 20**. The difference between each pair is **5**. This is called an **arithmetic sequence**—the numbers increase (or decrease) by the same amount every time.

But not all sequences work this way. Some multiply by the same number each time. For example, **2, 6, 18, 54** uses a pattern where each number is multiplied by **3**. This is called a **geometric sequence**.

Think of it like a game of spotting differences. Imagine your friend is hiding a rule in their number list, and your job is to be a detective and find the clue!

Why Sequences Matter

Number sequences aren't just fun puzzles—they appear everywhere in real life. **Population growth, bank interest**, and even the way plants grow follow number

patterns. Scientists and mathematicians use sequences to predict what will happen next.

Learning to spot patterns helps you think logically and solve problems. It trains your brain to look for connections and understand how things work.

Practice Spotting Patterns

Try these sequences and see if you can find the next number:

1. **3, 6, 9, 12, ?** (Hint: look at the difference)

2. **1, 4, 9, 16, ?** (Hint: these are **square numbers**)

3. **2, 4, 8, 16, ?** (Hint: what is each number multiplied by?)

Once you get good at spotting patterns, you'll start seeing them everywhere!