How to Calculate the Probability of an Event

KS4 MATHEMATICS STATISTICS PROBABILITY Ages 13-16 ⏰ 3 min read

What is Probability?

Probability is a way of measuring how likely something is to happen. It's a number between **0 and 1**, where **0** means something will definitely not happen, and **1** means it will definitely happen. Numbers in between show different levels of likelihood.

Think of it like a weather forecast. If there's a **0%** chance of rain, don't bring an umbrella. If there's a **100%** chance, definitely bring one. A **50%** chance means you're genuinely unsure, so you might bring one just in case.

The Probability Formula

The basic **probability formula** is simple and powerful. Here it is: **Probability = Number of Favourable Outcomes ÷ Total Number of Possible Outcomes**.

Let's break this down. A **favourable outcome** is the result you're hoping for. The **total number of possible outcomes** is every single thing that could happen. By dividing one by the other, you get your probability.

A Real Example

Imagine you have a bag with **3 red balls** and **7 blue balls**. What's the probability of picking a red ball without looking?

The number of favourable outcomes is **3** (the red balls). The total number of possible outcomes is **10** (all the balls). So the probability is **3 ÷ 10 = 0.3**, or **30%**.

Think of it like a raffle. If **3** tickets out of **100** are winners, your chance of winning is **3 ÷ 100 = 0.03**, or **3%**.

Why Does This Matter?

Understanding probability helps us make smart decisions in real life. Insurance companies use it to set prices. Weather forecasters use it to predict storms. Scientists use it to test medicines. Even games like football and chess involve probability.

The key thing to remember is that probability isn't about magic or guessing—it's maths. Once you know the formula and can count your outcomes carefully, you can work out the chances of almost anything happening.