Superposition

Qubits (quantum bits) are what store data in a quantum computer. Unlike regular computer bits that can only be 0 or 1, qubits can exist in multiple states at the same time - this is called superposition. Imagine a coin spinning on a table - when it's spinning, it's kind of both heads and tails at once; but when it stops spinning and falls, it has to be either one or the other.

When a qubit is in superposition, it can be a combination of the 0 and 1 states until it's measured. When scientists measure a qubit, it **collapses** to either 0 or 1, just like how a spinning coin falls to either heads or tails. Superposition is what makes entanglement between qubits possible. When multiple entangled qubits work together, quantum computers can explore many possible solutions at once, which helps them solve difficult problems in an efficient way.