How Computers Make True or False Decisions

KS2 COMPUTING Ages 10-14 ⏰ 3 min read

What Are True and False?

Computers think in a special way called **Boolean logic**. This means they only understand two answers: **true** or **false**. True means "yes, this is correct." False means "no, this is wrong." Everything a computer does is built on these two simple ideas.

For example, a computer might ask: "Is the user's password correct?" The answer is either true (yes, it matches) or false (no, it doesn't). This simple yes-or-no thinking is the foundation of all computer decisions.

How Computers Use True and False

Computers use **conditionals**—special instructions that say "if something is true, do this." Think of it like a flowchart with different paths. If you answer "yes" to a question, the computer takes one path. If you answer "no," it takes a different path.

Think of it like a tree with branches. At each branch, the computer asks a yes-or-no question. Depending on the answer, it follows one branch or the other until it reaches the end result.

Inside a computer, these true-and-false decisions happen using **electrical signals**. A signal can be on (true) or off (false). When millions of these signals work together, they create all the complex things computers do—from games to websites to sending messages.

Real Examples in Your Daily Life

When you use a **video game**, the computer constantly asks true-or-false questions. "Is the jump button pressed?" True—so the character jumps. "Did the player touch the enemy?" True—so the player loses health. All these quick decisions make the game work.

On your **smartphone**, face recognition uses true-and-false logic too. The phone asks: "Does this face match the owner's face?" True = unlock the phone. False = keep it

locked.

Think of it like a bouncer at a concert. They ask: "Are you on the guest list?" True = you get in. False = you don't.

Building Bigger Decisions

Computers can link **multiple** true-and-false questions together to make complex decisions. They can say: "If this is true AND that is true, then do this." Or: "If this is true OR that is true, do that instead."

These simple building blocks of true and false are called **bits**, and they're the language every computer speaks. No matter how powerful or complex a computer is, everything comes down to billions of true-and-false decisions happening incredibly fast.