



Block Coding 3: Conditionals and Sensing

Teach a sprite to make decisions

Conditionals, Booleans and the Game Loop

A **conditional** lets a script make a decision. It asks a yes/no question called the **condition**. A condition is a **boolean**: its answer is always **true** or **false**.

`if <> then` runs the blocks inside it only when the condition is true; when it is false, it skips them.

`if <> then / else` always runs one of two paths: the top part when the condition is true, the `else` part when it is false.

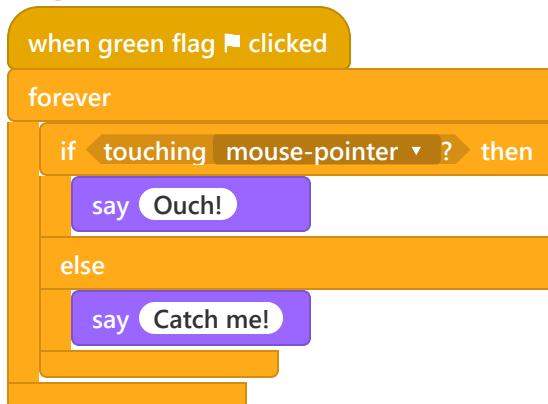
Sensing blocks ask about the sprite's world: `touching edge?`, `touching mouse-pointer?`, `key space pressed?`, and `touching color?` (you pick the color). **Operators** compare numbers: `score > 10` is true only when score is more than 10, so `10 > 10` is false.

An `if` checks its condition **once**, at the moment it runs. To keep checking, put it inside `forever`. This forever + if pattern is a **game loop**: it checks again and again, many times a second.

1 Read the If / Else

Read Script A. It starts when the green flag is clicked and keeps running.

Script A



a. What is the **condition** in Script A?

b. Pointer on the sprite: true or false? What does it say?

c. Pointer moves away: what does it say now? How does it notice the change?

2 True or False?

`score` is a number the game keeps track of. Write **T** (true) or **F** (false) for each condition.

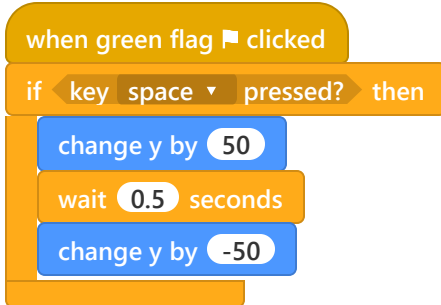
Condition	score is 8	score is 10	score is 15
<code>score > 10</code>			
<code>score < 10</code>			
<code>score = 10</code>			



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3 Debug It!

Sam's sprite should jump every time he presses space. He clicks the green flag, but it never jumps.

Sam's script

a. What is the bug? Explain **when** the `if` checks for the space key.

b. Write the fixed script, one block per line. Indent blocks that go inside a C-block.

4 Pick the Condition

Match each game rule to the condition it needs. Write the letter on the line.



The player wins after collecting more than 10 coins: _____

The car jumps when the player taps the space bar: _____

The ball turns around when it reaches the side of the stage: _____

The cat goes back to the start when it steps in red lava: _____

5 Write a Conditional

When the green flag is clicked, the cat should **keep checking** if it is touching the color red (lava). If it is, it says "Too hot!" for 1 second, then goes to `x: -200, y: 0`. Write the script, one block per line.