

Programming, control structures

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YOU CAN TRY USING SCRATCH

Scratch

- **Scratch is a block-based visual programming language and online community targeted primarily at children.**



Scratch: loop

The screenshot displays the Scratch programming environment. The top navigation bar includes the Scratch logo, a globe icon, and menu items for File, Edit, Tutorials, and a search bar containing the word "loop". On the right side of the top bar, there are buttons for "Save Now", a folder icon, a cat icon, and a dropdown menu labeled "redols".

The left sidebar shows the "Code" tab selected, with sub-tabs for "Costumes" and "Sounds". A vertical menu on the left lists various block categories: Motion, Looks, Sound, Events, Control, Sensing, Operators, Variables, and My Blocks. The "Motion" category is currently active, showing several blue blocks: "turn 15 degrees", "go to random position", "go to x: -216 y: 73", "glide 1 secs to random position", and "glide 1 secs to x: -216 y: 73".

The main workspace contains a script on a grid background. The script starts with an orange "when green flag clicked" block, followed by a blue "go to x: 0 y: 0" block. Below this is a yellow "repeat" block set to 10 iterations. Inside the repeat loop, there are two blue blocks: "turn 90 degrees" and "glide 1 secs to random position".

The right side of the interface shows a stage with a colorful bedroom scene. A cat sprite is positioned on the left side of the stage. Below the stage, the "Sprite" panel shows "Sprite1" with its x and y coordinates set to -216 and 73, respectively. The "Stage" panel shows the current scene and a "Backdrops" section with a plus icon.

At the bottom of the interface, there is a "Backpack" section with a plus icon and a "Sprite1" button.

Scratch: if

The screenshot displays the Scratch IDE interface. The top navigation bar includes the Scratch logo, a globe icon, and menu options: File, Edit, Tutorials, and an 'Untitled' project name. On the right side of the top bar, there are 'Save Now', a folder icon, and a 'redols' user profile. Below the top bar, the 'Code' tab is selected, with 'Costumes' and 'Sounds' tabs also visible. The left sidebar shows a vertical menu of block categories: Motion, Looks, Sound, Events, Control, Sensing, Operators, Variables, and My Blocks. The 'Looks' category is currently selected, showing various 'say' and 'think' blocks. The main workspace contains a script for a sprite. The script begins with a 'when clicked' event block, followed by a 'go to random position' block, a 'switch costume to ball-a' block, and a 'forever' loop. Inside the loop, there is a 'glide 1 secs to random position' block, an 'if touching mouse-pointer?' block. The 'if' block has a 'then' branch containing a 'switch costume to ball-b' block, a 'go to x: 0 y: 0' block, a 'wait 1 seconds' block, and a 'say Done' block. The script concludes with a 'stop this script' block. The right side of the workspace shows a stage with a blue sky background and green hills. A blue ball sprite is positioned in the sky, with a speech bubble containing the text 'Done'. Below the stage, the 'Sprite' panel shows the 'Ball' sprite selected, with its x and y coordinates set to 0, and its size set to 100. The 'Stage' panel shows the current background and a 'Backdrops' section with a 'Ball' backdrop selected. At the bottom of the workspace, there is a 'Backpack' label.

Scratch: nested loop

The image displays the Scratch code editor interface. On the left, the 'Code' tab is active, showing a script for a cat sprite. The script begins with a 'when green flag clicked' event block, followed by a 'go to x: 0 y: 0' block. A 'repeat' loop with a count of 10 contains three blocks: 'turn 90 degrees', 'glide 1 secs to random position', and a nested 'repeat' loop with a count of 2 containing a 'say Hello! for 2 seconds' block. The right side of the editor shows a bedroom scene with a cat sprite jumping. The bottom right panel displays the 'Sprite' properties for 'Sprite1', with x: -180, y: 97, size: 100, and direction: 180. The 'Stage' panel shows the current backdrop and a 'Backdrops' section.

```
when green flag clicked
  go to x: 0 y: 0
  repeat (10)
    turn 90 degrees
    glide 1 secs to random position
    repeat (2)
      say Hello! for 2 seconds
```

Scratch

The image shows the Scratch programming environment. At the top, there is a menu bar with "SCRATCH", a globe icon, a save icon, a share icon, and "File Edit Share Help". Below the menu bar is a toolbar with icons for undo, redo, and zoom. The main interface is divided into several sections:

- Left Panel:** A vertical sidebar with categories: Motion, Looks, Sound, Pen, Control, Sensing, Operators, and Variables. Below these are various code blocks for movement (e.g., "move 10 steps", "turn 15 degrees"), pointing (e.g., "point in direction 90"), and other actions.
- Center Panel:** A workspace for the sprite. It shows "Sprite1" with a cat icon. Below the sprite name are tabs for "Scripts", "Costumes", and "Sounds". The "Scripts" tab is active, showing a script with three "when clicked" blocks. The first block contains "go to x: -175 y: -77". The second block contains a "forever" loop with an "if key right arrow pressed?" block followed by "move 2 steps". The third block contains another "forever" loop with an "if key up arrow pressed?" block followed by "turn 45 degrees".
- Right Panel:** A stage showing a 3D-rendered room scene with a bed, desk, and window. A cat sprite is running on the floor. Below the stage is a "New sprite:" section with three icons (a cat, a star, and a question mark) and a "Sprite1" icon below it.