Scratch Programming Cheatsheet

A quick reference guide to Scratch, a visual programming language for creating interactive stories, games, and animations. This cheatsheet covers essential blocks, concepts, and best practices.

Motion Blocks

Basic Movement

`move (10) steps`	Moves the sprite forward by the specified number of steps. Use negative values to move backward.
`turn (↻ 15) degrees`	Rotates the sprite clockwise by the specified number of degrees.
`turn (↺ 15) degrees`	Rotates the sprite counter-clockwise by the specified number of degrees.
`go to (random position)`	Moves the sprite to a random location on the stage.
`go to x: (0) y:(0)`	Moves the sprite to the specified x and y coordinates.
`glide (1) secs to x: (0) y:(0)`	Smoothly animates the sprite moving to the specified x and y coordinates over the given number of seconds.

Direction and Rotation

`point in direction (90)`	Sets the sprite's direction to the specified angle (0=up, 90=right, 180=down, -90=left).
`point towards (mouse-pointer)`	Points the sprite towards the mouse pointer or another sprite.
`change x by (10)`	Changes the sprite's horizontal position by the specified amount.
`set x to (0)`	Sets the sprite's horizontal position to the specified value.
`change y by (10)`	Changes the sprite's vertical position by the specified amount.
`set y to (0)`	Sets the sprite's vertical position to the specified value.

Edge Bouncing

`if on edge, bounce`	- If the sprite is touching the edge of the stage, it will reverse its direction.

Looks Blocks

Speech and Thought

`say (Hello!) for (2) seconds`	Displays a speech bubble with the specified text for the given duration.
`say (Hello!)`	Displays a speech bubble with the specified text indefinitely.
`think (Hmm...) for (2) seconds`	Displays a thought bubble with the specified text for the given duration.
`think (Hmm...)`	Displays a thought bubble with the specified text indefinitely.

Costumes and Backdrops

`switch costume to (costume1)`	Changes the sprite's appearance to the specified costume.
`next costume`	Switches to the next costume in the sprite's costume list.
`switch backdrop to (backdrop1)`	Changes the stage's background to the specified backdrop.
`next backdrop`	Switches to the next backdrop in the stage's backdrop list.

Effects

`change [color v] effect by (25)`	Changes the specified visual effect (color, fisheye, whirl, pixelate, mosaic, brightness, ghost) by the given amount.
`set [color v] effect to (0)`	Sets the specified visual effect to the given value.
`clear graphic effects`	Removes all visual effects applied to the sprite.
`change size by (10)`	Changes the sprite's size by the specified amount.
`set size to (100) %`	Sets the sprite's size to the specified percentage.

Visibility

`show`	Makes the sprite visible.
`hide`	Hides the sprite from view.
`go to [front v] layer`	Moves the sprite to the front or back layer, controlling its stacking order.

Control Blocks

Events

`when [green flag v] clicked`	Starts the script when the green flag is clicked.
`when this sprite clicked`	Starts the script when the sprite is clicked.
`when [space v] key pressed`	Starts the script when the specified key is pressed.
`when backdrop switches to [backdrop1 v]`	Starts the script when the backdrop changes to the specified backdrop.
`when [loudness v] > (10)`	Starts the script when the loudness (from the microphone) exceeds the specified threshold.
`when I receive [message1 v]`	Starts the script when a broadcast message is received.

Loops

`wait (1) seconds`	Pauses the script execution for the specified number of seconds.
`repeat (10)`	Executes the blocks inside the loop the specified number of times.
`forever`	Executes the blocks inside the loop indefinitely.
`if <(true)> then`	Executes the blocks inside the `if` block only if the condition is true.
`if <(true)> then ... else`	Executes the blocks inside the `if` block if the condition is true; otherwise, executes the blocks inside the `else` block.
`wait until <(true)>`	Pauses the script execution until the specified condition is true.
`repeat until <(true)>`	Executes the blocks inside the loop until the specified condition is true.

Stopping Scripts

`stop [all v]`	Stops the specified scripts (all, this script, other scripts in sprite).
`create clone of [myself v]`	Creates a clone of the sprite.
`delete this clone`	Deletes the current clone.

Broadcasting

`broadcast [message1 v]`	Sends a message to all sprites and the stage without waiting for a response.
`broadcast [message1 v] and wait`	Sends a message and pauses the script execution until all receiving scripts have finished running.

Sound and Pen Blocks

Sound Blocks

`play sound [Meow v] until done`	Plays the specified sound and waits until it finishes before continuing the script.
`start sound [Meow v]`	Starts playing the sound without waiting for it to finish.
`stop all sounds`	Stops all currently playing sounds.
`change volume by (-10)`	Changes the volume by the specified amount.
`set volume to (100) %`	Sets the volume to the specified percentage.
`change tempo by (20)`	Changes the tempo (speed) of the music by the specified amount.
`set tempo to (60) bpm`	Sets the tempo to the specified beats per minute.

Pen Blocks

`erase all`	Clears all pen drawings from the stage.
`pen down`	Starts drawing when the sprite moves.
`pen up`	Stops drawing when the sprite moves.
`set pen color to (#FF0000)`	Sets the pen color to the specified RGB value.
`change pen color by (10)`	Changes the pen color by the specified amount.
`set pen size to (1)`	Sets the pen size to the specified value.
`change pen size by (1)`	Changes the pen size by the specified amount.