

octostudio

# Reference Guide

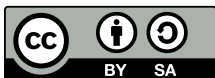


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[octostudio.org](https://octostudio.org)

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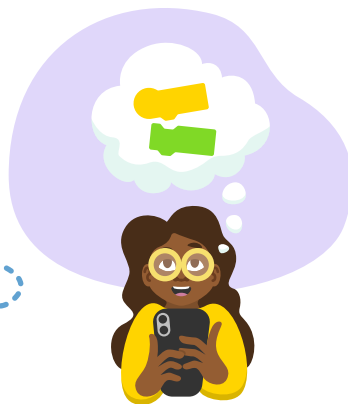
If adapting, we ask you to include this credit:  
"OctoStudio was created by the Lifelong Kindergarten group at MIT Media Lab. To learn more, visit [octostudio.org](http://octostudio.org)."



# About

OctoStudio is a free mobile coding app that lets you create animations, games and other interactive projects using photos, drawings, and sounds from the world around you. OctoStudio is developed by the Lifelong Kindergarten group, the MIT Media Lab team that created the Scratch coding language.

**The best way to learn OctoStudio is by exploring and tinkering**




This reference guide provides additional background on the OctoStudio app for those interested in learning more. If you are new to OctoStudio, please take a look at our Learning Resources, listed below.

This guide includes a complete list of coding blocks and tips about other features. We hope this guide can be a useful source of supplementary material as you create or help others creating projects with OctoStudio.

## Learning Resources in the OctoStudio App

The OctoStudio app contains several learning resources.


### Project Editor


 **Ideas to Try:** Explore cool features in OctoStudio and incorporate sample blocks of code.

### Explore Page

#### **Getting Started video:**

Shows basic steps for creating a project.

 **Sample Projects:** Try a variety of sample projects and customize them.

 If you have any further questions, please see the Support section of our website at [octostudio.org](https://octostudio.org)

# Editor

**Selected Sprite**

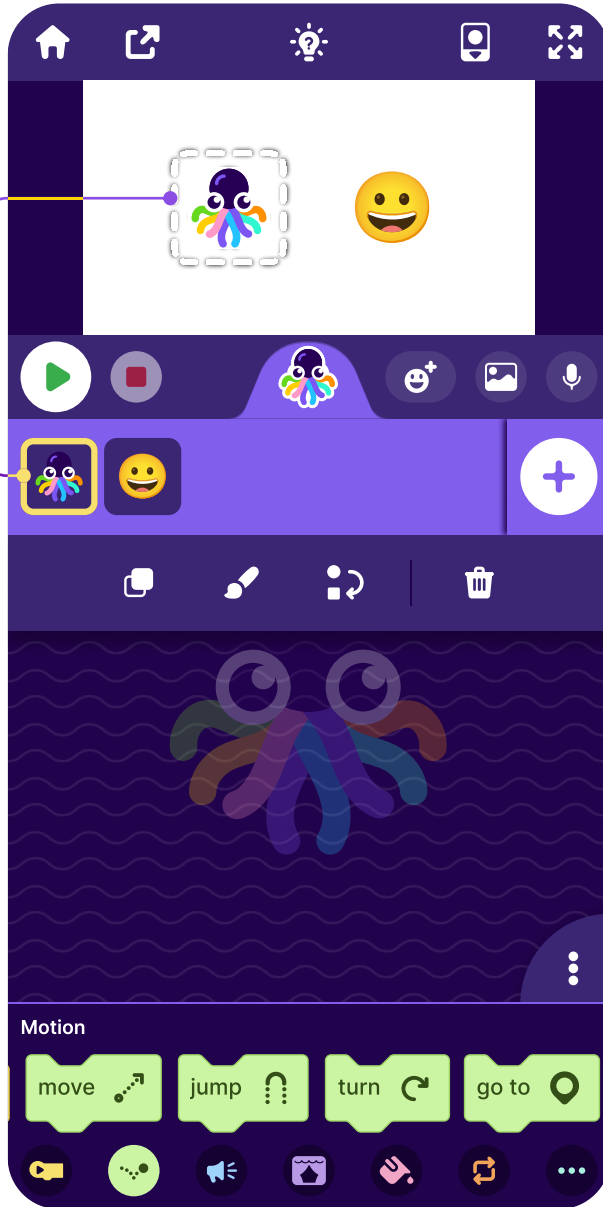
**Sprite Menu**

Displays all your sprites

Tools for editing selected sprite

**Blocks Palette**

All blocks used to code your projects are found here



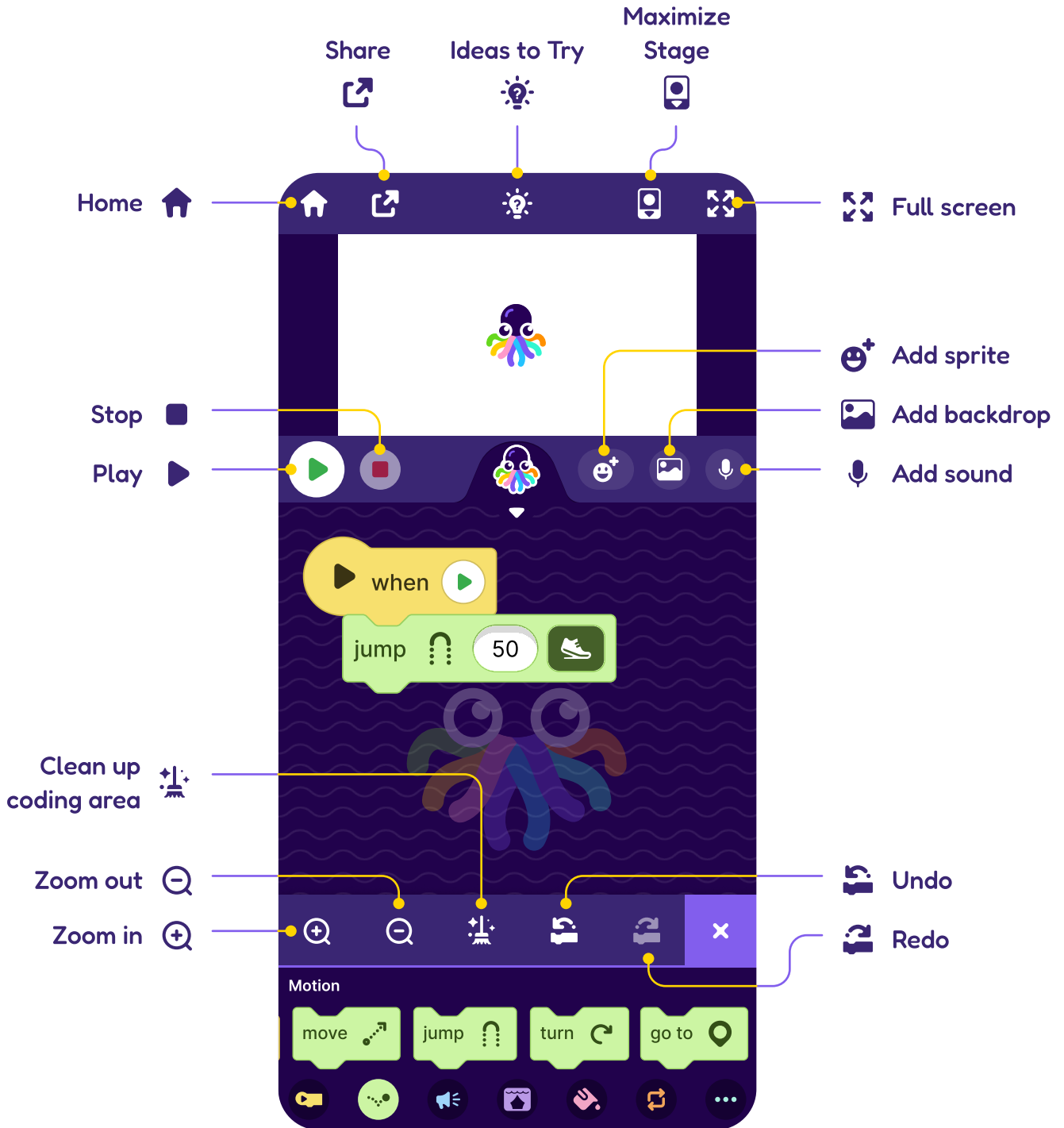
**Stage**

Where your creations come to life

**Coding Area**

Drag in and snap together blocks to code your sprites

# Tools and buttons

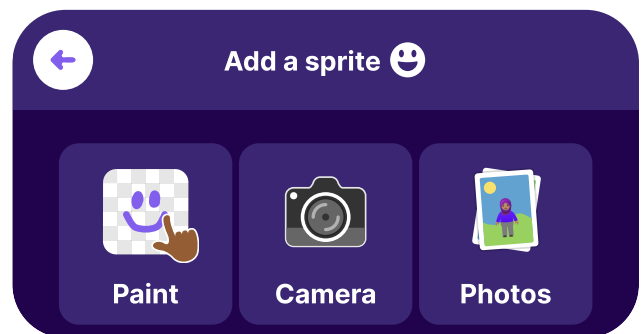


# Sprites

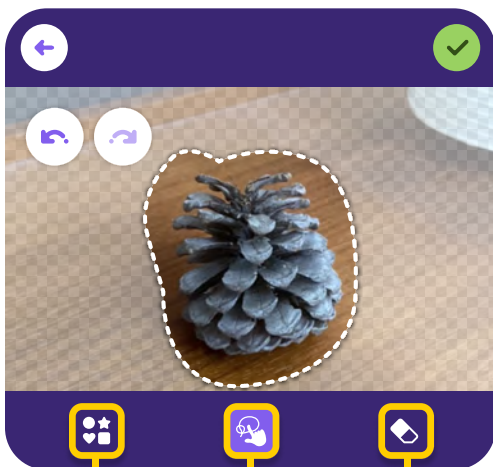
Start with a **sprite**! A sprite is any character, object, or image that you want to bring to life.

## Create a sprite

There are four different ways to add a sprite: draw in the paint editor, take or choose a photo, or choose from the emoji library.



## Adding a photo sprite

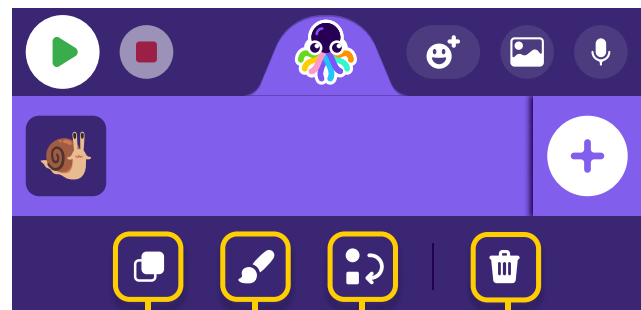


**Trace and crop**  
your image

**Crop** your photo into **shapes**: a circle, heart, square, or star

**Erase** from the area you have traced

## Sprite options in editor



**Duplicate**  
Create a copy of your sprite

**Replace**  
Replace your current sprite image

**Edit**  
Personalize and draw on your sprite

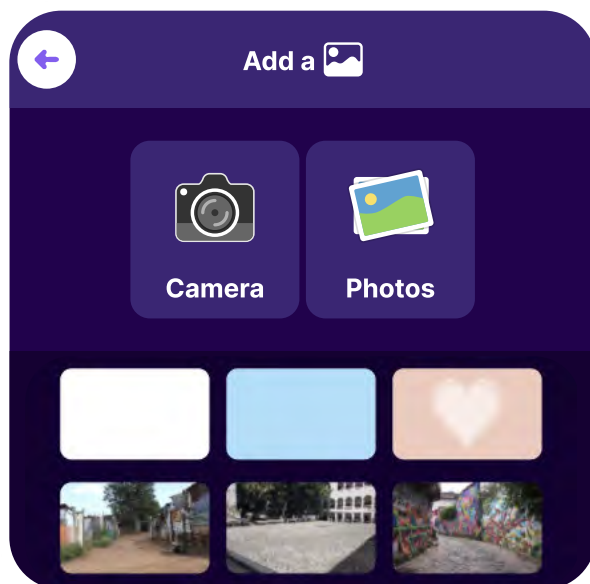
**Delete**  
Remove sprite from the project

# Backdrops



The **Stage** is 320 units wide and 180 units high, forming an x-y grid. The sprite will automatically be positioned in the center (160, 90).

Add a **backdrop** by taking a picture or choosing from the library!



## Options



Take a picture



Choose from your photo album

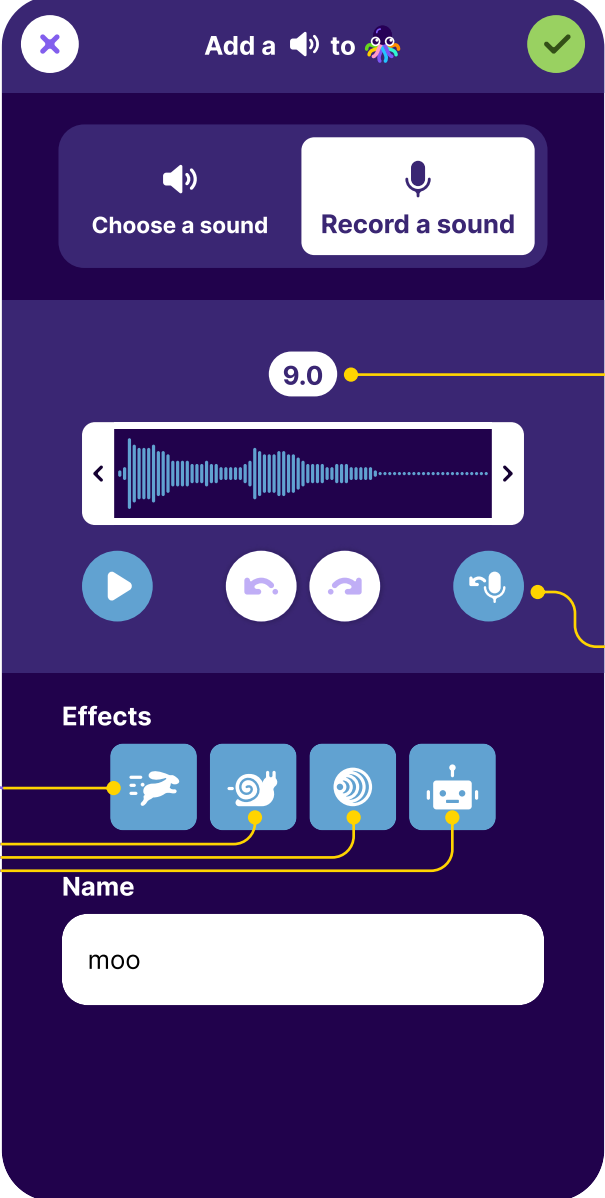


### Backdrop Library

Choose from our collection of backdrops, including some photos from our global partners!

# Sounds

Record your own sounds or select one from the sound library to use in your OctoStudio projects.




The screenshot shows the 'Add a sound' interface in OctoStudio. At the top, there are two buttons: 'Choose a sound' and 'Record a sound'. Below these is a recording length indicator showing '9.0' seconds. A waveform visualization of the recording is displayed in the center. Below the waveform are four circular buttons: a play button, a undo button, a redo button, and a replace button. At the bottom, there is an 'Effects' section with four icons: Speed up, Slow down, Echo, and Robot. A 'Name' input field contains the text 'moo'.

**Effects**

- Speed up** 🏃: Make your recording faster
- Slow down** 🐌: Make your recording slower
- Echo** 🌀: Adds an echo effect to your recording
- Robot** 🤖: Adds a robotic effect to your recording

**Recording Length** 9.0: Displays length of recording in seconds

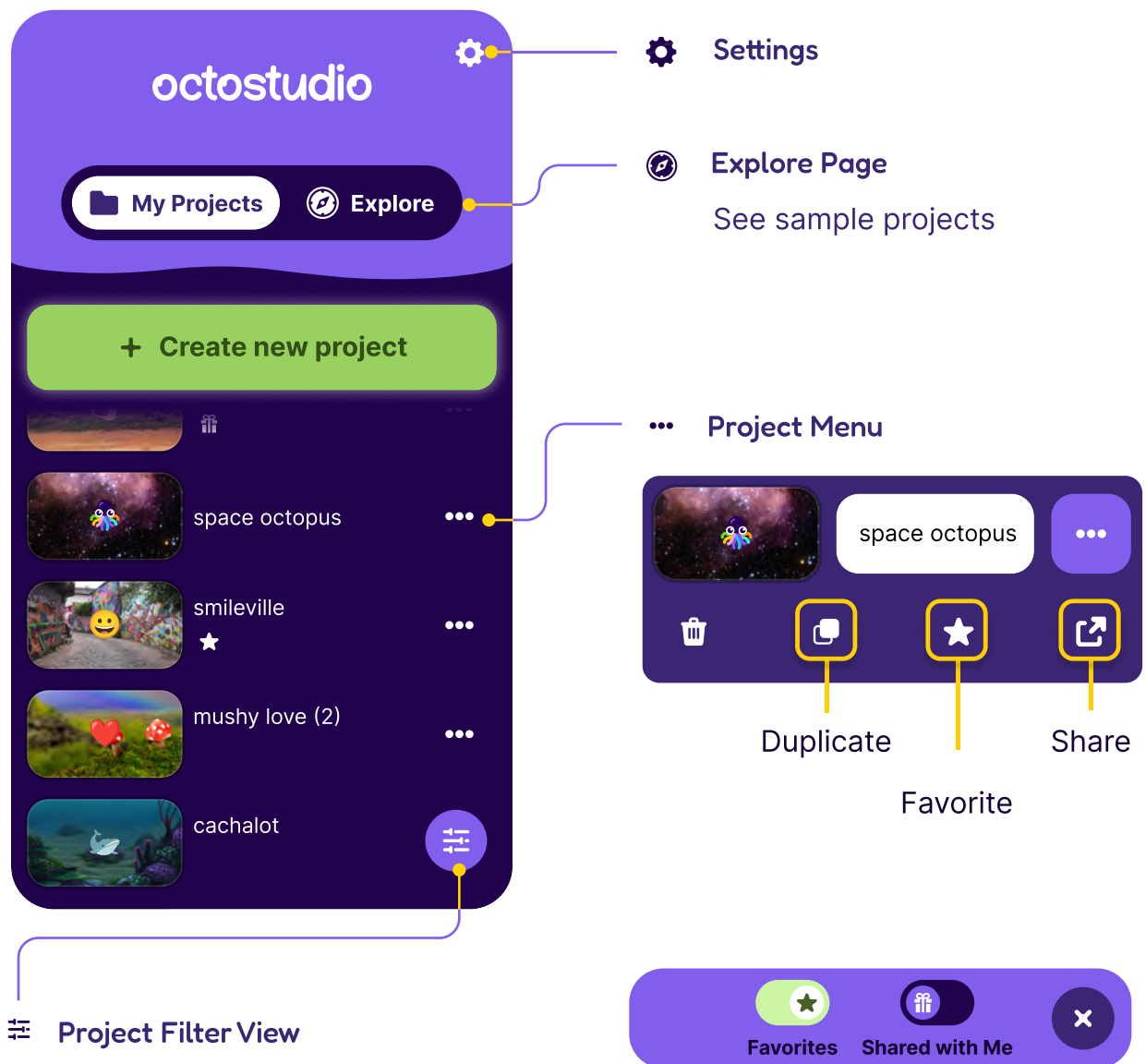
**Replace** 🔄: Re-record current recording

Select a section of the recording by dragging the two arrows on either side of the recording box. All effects will only be applied to the selected section. If you want to crop your sound to the selected length, press  Crop



# Home screen

All your projects are listed in the home screen. You can also go to Settings and the Explore page from the home screen.



You can filter which projects are listed.

★ Favorites: Lists only projects you have favorited (with a star)

🔗 Shared with me: Lists only projects that were shared with you

# Block categories

There are seven block categories in OctoStudio.

## Name

## Description



### When to start?

Place one of these blocks on top of each script of code to tell it when to run.



### Motion

Tell your sprites how to move.



### Words and Sounds

Tell your sprite to play sounds, display text, and more.



### Scene

Make visual changes such as resizing your sprites and changing the backdrop.



### Colors and Light

Change the color of your sprite and other light settings.



### Control

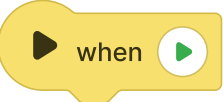
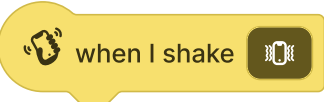



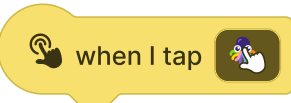



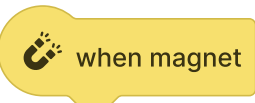
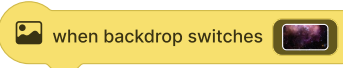
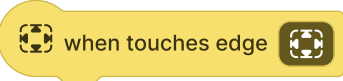
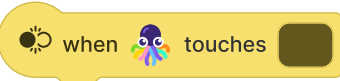
Controls the flow of your code.








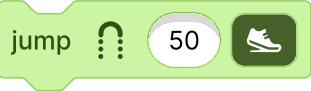







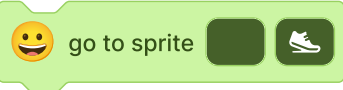


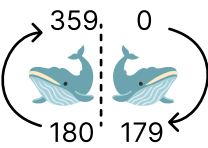
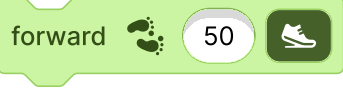
### More Blocks

Includes miscellaneous blocks such as variables, 'tilt', and custom blocks.





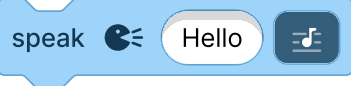
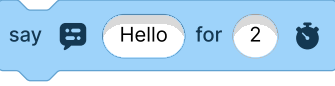

# When to start?

Block	Description	Tips and Options
	When the play button is tapped, runs the script below	
	Starts the script when you shake the phone (or tablet)	Choose how much of a shake is needed to start: low  medium  high 
	Starts the script when you tap on the selected sprite or other option	Choose to tap  sprite  backdrop  anywhere
	Starts the script when a magnet is placed near the phone (or tablet)	See OctoStudio YouTube for examples. (Note: This feature may not be supported on some Android devices.)
	Starts the script when you set the Stage to the selected backdrop.	
	Starts the scripts when the sprite reaches selected edge of the Stage	Only starts if the sprite reaches the edge from <b>inside</b> the Stage (not when the sprite wraps to the other side).
	Starts the script when the current sprite touches the selected sprite	Choose a sprite to detect. At least two sprites are needed for this block to run.

# Motion

Block	Description	Tips and Options
	Moves the sprite in a direction a specified amount.	Pick direction with arrow, set speed as  slow  medium  fast  instant
	Makes a sprite go up and down	Type larger number for higher jumps, negative for jumping downward.
	Rotates the sprite a certain number of degrees	Type in an angle from 1 to 360. Set direction to  clockwise  counterclockwise  random
	Tells a sprite where to go on the Stage	Pick a destination by tapping  . You can drag the sprite in the window, type in numbers, or use random 
	Makes this sprite go to the position of another sprite	This sprite will go to the <b>rotation point</b> of the other sprite. (You can move a sprite's rotation point in the paint editor.) 
	Sets the direction a sprite is facing	This block will flip a sprite. Use turn block for full rotation. 
	Moves forward in the current direction	



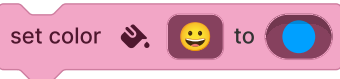


# Words and Sounds

Block	Description	Tips and Options
	Plays a library or recorded sound	<p>Tap to choose or record a sound.</p> <p>Select 'until done'  if you want this sound to finish playing before the next block runs. Select 'and continue'  if you want the sound to play at the same time as the next block.</p>
	Makes the phone vibrate	Only phones with haptic feedback will vibrate.
	Makes your sprite talk aloud	To change language pronunciation, change the language in OctoStudio settings.
	Displays words in a speech bubble	Type how many seconds you want the words to appear for.
	Makes text appear on the Stage as a title or caption	Edit, resize, change color, and reposition text by tapping on the text. Each sprite can display one text box; use additional sprites for more text simultaneously.

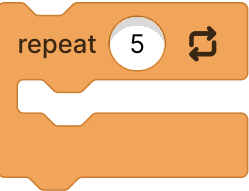

# Scene

Block	Description	Tips and Options
	Sets sprite's size to specified % of original size	
	Changes sprite's size by specified amount	
	Makes sprite disappear from the Stage	To hide a sprite at the start of a project, use hide with ⚡. Hidden sprites do not interact with other sprites.
	Makes sprite appear on the Stage	Change a sprite's transparency by entering a number below 100. At 0, the sprite is invisible but still interactive.
	Sets backdrop to the selected backdrop	Choose a specific backdrop or previous  next  or random
	Layers a sprite in front or behind of another sprite	Option to layer in front of or behind all sprites

# Colors and Light

Block	Description	Tips and Options
	Creates a colorful glow around sprite	Choose the color of the glow.
	Turns your device's flashlight on or off	
	Sets sprite or backdrop to a certain color	Options: set color of sprite or backdrop. To reset, set color to 
	Shifts the color of the sprite or backdrop	Will return to its original color every 360 units.

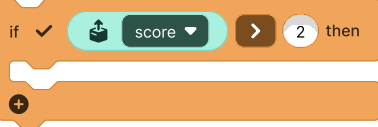











# Control

Block	Description	Tips and Options
	Runs the script inside a specified number of times	Snap blocks inside the "mouth" of the repeat or forever block.
	Runs the script inside over and over until the project stops	


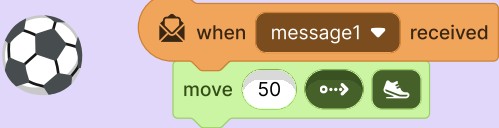
Example:



# Control

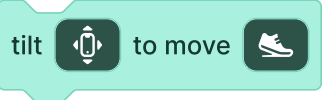






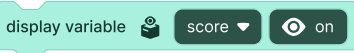



Block	Description	Tips and Options
	Checks once if a condition is true. If so, it runs the blocks inside.	<p>To add an "else" to the block, tap  once. For "else if" segment, tap  multiple times.</p> <p>You can insert a number, variable, or other reporter such as:</p> 
	Waits a specified number of seconds before continuing	
	Waits until a sensor is detected, then continues to run the next block.	Options to wait until: shake  , tap  , or when a magnet  is near the phone
	Stop scripts or sounds that are running	The options are to stop this script, all sounds, other scripts in this sprite, or all scripts in the project.
	Sends a message that all sprites can receive	
	Starts this script when the selected message is received	

Examples:



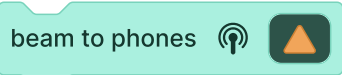

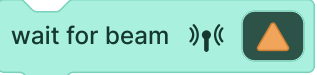







# More Blocks

Block	Description	Tips and Options
	Tilt your phone to move the sprite	<b>Hold phone at desired angle before pressing play.</b> Works best in a forever block. Choose whether to move by tilting horizontally  , vertically  , or in all four directions  .
	Reports the angle your phone is being tilted in, either horizontal or vertical	The angle value that this block returns is scaled down to 1/4.
	Sets the selected variable to a specified number	To create a new variable, tap +. Variable names cannot currently be deleted.
	Changes the selected variable by a given amount	
	Displays or hides variable monitor on the Stage	To hide the variable, choose  off. Variables default to being displayed on the Stage.
	Returns the current number value of a variable	You can snap this block into any rounded slot inside another block.
	Reports the size or other info about the sprite	Options to report a sprite's direction, size, x-position, or y-position.

# More Blocks

Block	Description	Tips and Options
	Picks a random number within the specified range	
	Performs a certain mathematical operation on two values.	Choose addition <b>+</b> , subtraction <b>-</b> , multiplication <b>x</b> , or division <b>÷</b> .
	Sends message via Bluetooth to other nearby devices using OctoStudio	<p>Enable Bluetooth for this block to broadcast a message to all nearby devices using OctoStudio</p> <p>There are five different messages you can beam:</p>  <p>The range of the beam block is approximately 30 feet (10m).</p>
	Runs script below when it receives specified beam message	
	<p>Create a custom block</p> <p>Name your block and then snap blocks below to define what your new block will do.</p>	<p>Custom blocks can make your code more organized. All custom blocks will appear in 'More Blocks' at the end of the blocks palette. Custom blocks are specific to a sprite.</p>

## Where to find settings?

Look for the gear  in the upper right of the home screen

### Languages

OctoStudio is offered in more than 20 languages. You can change languages anytime in settings.

### Getting Started

If you want to see the Welcome screens every time you open the app, go to Settings and toggle the “Welcome screens” switch.

Starter cues are the animated hand icons that show you how to use OctoStudio. Activate it in Settings anytime.

### Accessibility

Accessibility functions can be activated in Settings. To use OctoStudio with a screen reader, activate the built-in screen reader on your device (VoiceOver in iOS and TalkBack in Android).

You can also toggle on “Sound effects for code blocks.” If you are on an iOS device and want to hear these sounds while using VoiceOver, turn off Audio Ducking in your device’s Voiceover settings.

### ● System Requirements

OctoStudio is compatible with both Android and iOS.

On an Android phone or tablet, you need version 8 or above.

On an iPhone or iPad, you need iOS version 15 or above.

### Further Information

For more information on installation and updates, please see our OctoStudio Support pages at [octostudio.org](https://octostudio.org)