

octostudio

Reference Guide

Revised July 2026

OctoStudio version 1.1.0 and higher



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OctoStudio was created by the Lifelong Kindergarten group at MIT Media Lab.
To learn more, visit octostudio.org.

Introduction

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. Use coding blocks to bring your ideas to life. OctoStudio is developed by the Lifelong Kindergarten group, the MIT Media Lab team that created the Scratch coding environment.



A great way to learn OctoStudio is by exploring and tinkering!

This reference guide includes a detailed description of the coding blocks, icons, settings, and other features in OctoStudio. It is intended for reference rather than instruction. If you are looking for learning resources and educator guides, we recommend visiting our [Learning Resources](#) page on the OctoStudio website at octostudio.org.

You can download OctoStudio for free from app stores.



For more details see **System Requirements** at the end of this guide.

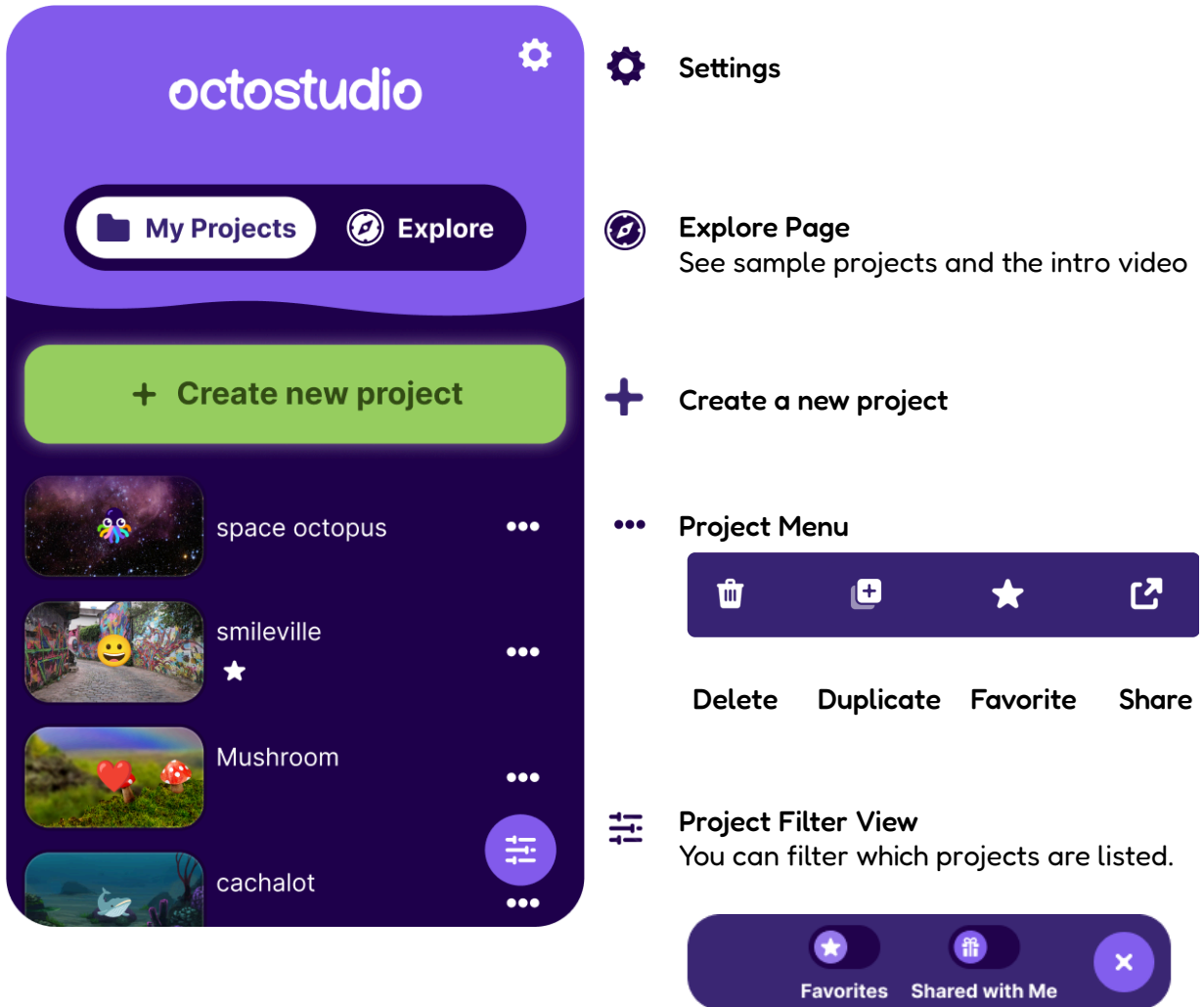
If you have questions, please visit the [Support](#) section on the OctoStudio website or email us at help@octostudio.org

If you are interested in contributing to our volunteer translation team, please contact translation@octostudio.org

Interface

Home Screen

All your projects are listed in the home screen. You can also go to the Explore tab to try out sample projects and view the intro video. To go to Settings, use the icon at the top right.



Favorites: Lists only projects you have favorited with a star.

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

Project Editor Overview

Portrait View

On a phone and some tablets, the OctoStudio project editor appears in Portrait View.

Sprite

A sprite is any character or object in your project

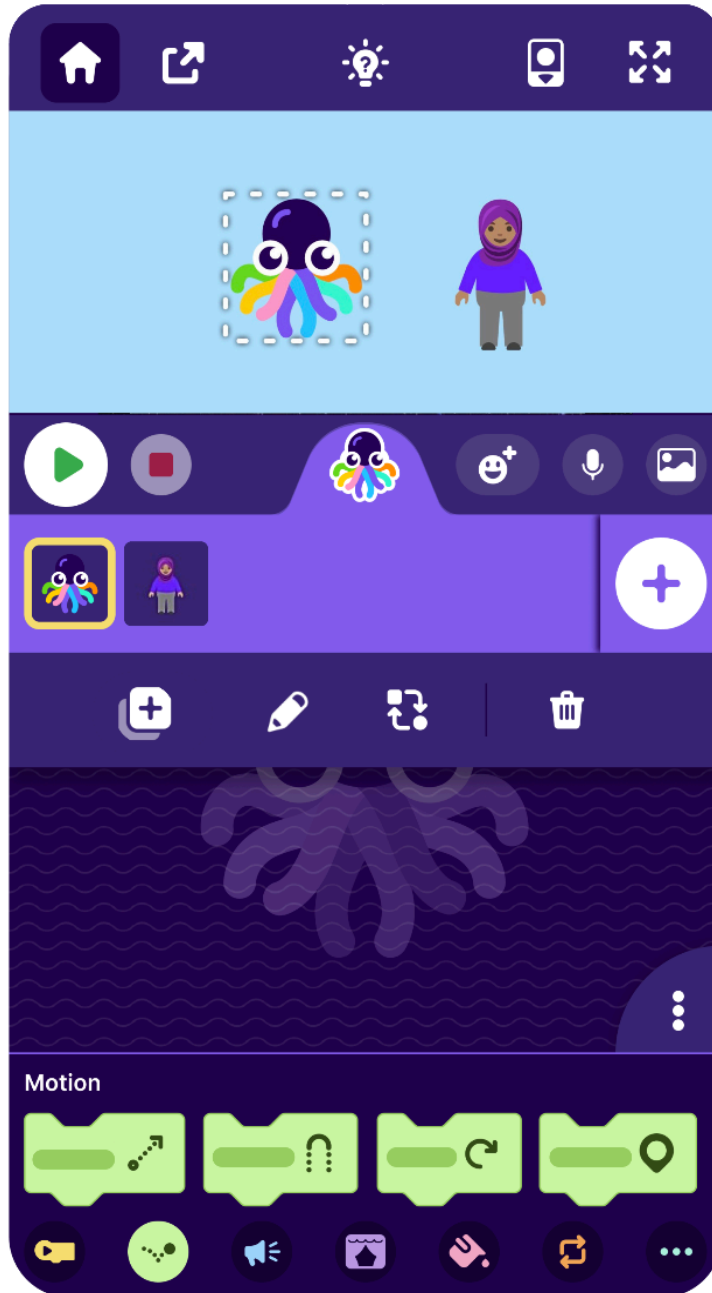
Play Button

Sprite Menu

Find all the sprites in a project here. You can also duplicate, edit, replace, or delete the sprite

Blocks Palette

All blocks used to code your projects are found here



Stage

Where your creations come to life

Quick Add

Add sprites, backdrops, and sounds to your project

Coding Area

Drag in and snap together blocks to code your sprites

Landscape View

On Chromebooks and large tablets, you can use the Project Editor in Landscape View. This interface contains the same options as in Portrait View, rearranged to fit the available space.

Stage

Where your creations come to life

Coding Area

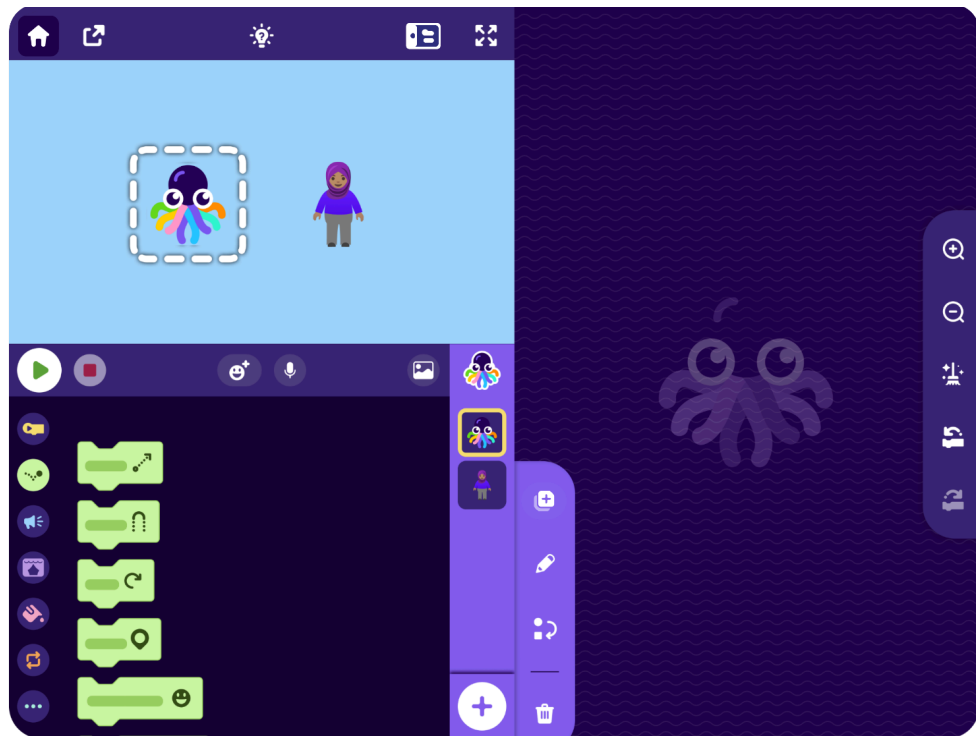
Drag in and snap together blocks to code your sprites

Sprite

A sprite is any character or object in your project

Play and Quick Add Buttons

Add sprites, sounds, and backdrops.



Blocks Palette

All blocks used to code your projects are found here

Sprite Menu

Find all the sprites in a project here. You can also duplicate, edit, replace, or delete the sprite

Project Editor Buttons

Share Ideas to try Expand stage

Home

Play

Stop

Fullscreen

Add sprite

Add backdrop

Add sound

Add sprite

Duplicate sprite Edit sprite Replace sprite Delete sprite

The image shows a central screenshot of the Octostudio Project Editor interface. The interface is divided into several sections. At the top, there are three buttons: 'Share' (with a share icon), 'Ideas to try' (with a lightbulb icon), and 'Expand stage' (with a document icon). Below these is a dark purple header bar containing a home icon, a share icon, a lightbulb icon, a stage view icon, and a fullscreen icon. The main stage area has a light blue background with a colorful octopus sprite and a person sprite. Below the stage is a dark purple control bar with a play button, a stop button, a stage view icon, an 'Add sprite' button, an 'Add sound' button, and an 'Add backdrop' button. At the bottom is a dark purple toolbar with a 'Duplicate sprite' button, an 'Edit sprite' button, a 'Replace sprite' button, and a 'Delete sprite' button. To the right of the screenshot, there are labels for the buttons: 'Fullscreen', 'Add sprite', 'Add backdrop', 'Add sound', and 'Add sprite'. Below the screenshot, there are labels for the bottom toolbar buttons: 'Duplicate sprite', 'Edit sprite', 'Replace sprite', and 'Delete sprite'.

Coding Area Options

Zoom in Zoom out Tidy up Undo Redo

Zoom in Zoom out Tidy up Undo Redo

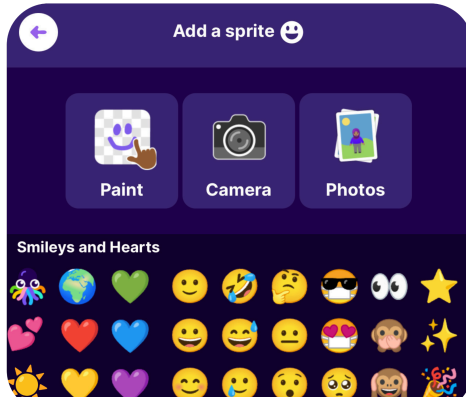
The image shows a toolbar for the coding area. It contains five buttons: 'Zoom in' (with a plus sign in a circle), 'Zoom out' (with a minus sign in a circle), 'Tidy up' (with a brush icon), 'Undo' (with a left arrow icon), and 'Redo' (with a right arrow icon). Below this toolbar is a screenshot of the coding area interface. The top bar of the coding area contains the same five buttons as the toolbar above, plus a close button (with an 'x' icon). Below the top bar are four green buttons with icons: a key icon, a lightbulb icon, a speaker icon, and a document icon. At the bottom of the coding area is a dark purple toolbar with a key icon, a lightbulb icon, a speaker icon, a document icon, a hand icon, a refresh icon, and a menu icon.

Sprites

A sprite is any character, object, or image that you can bring to life with coding blocks.

Add a Sprite

To add a sprite, you can paint your own, use a photo, or choose from the emoji library.



Paint

Draw in the paint editor



Camera

Take a photo



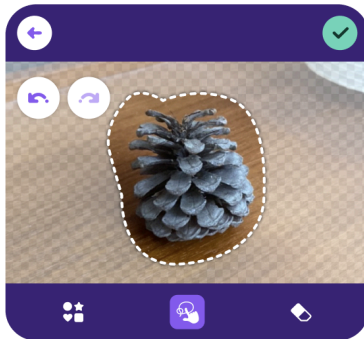
Photos

Choose a photo

Emojis

Or choose a sprite from the emoji library

Adding a Photo Sprite



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



Trace and **crop** your image



Erase from the area you have traced

Costumes

You can use costumes to animate sprites, such as making a person dance or a bird flap its wings. Each sprite comes with at least one costume, and you can add more. Each costume can be a different look or pose for that sprite.



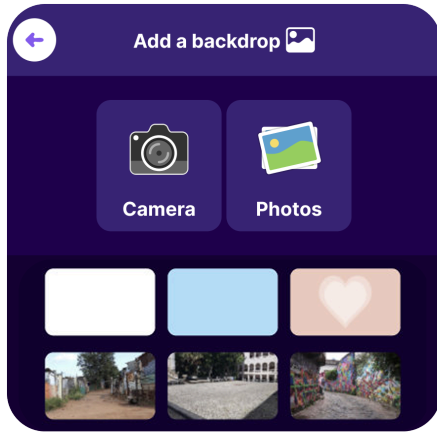
To make an animation with a sprite's costumes, use a **play costume** or **set costume** block.

You can edit a sprite's costumes in the Paint Editor.

Note: Costumes are available in OctoStudio versions 1.1.0 and higher.

Backdrops

You choose a backdrop whenever you create a project. You can also add more backdrops in the Project Editor.



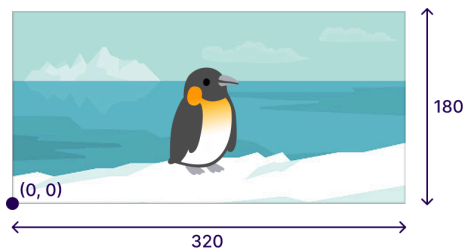
There are three different options for adding a backdrop:



Backdrop Library

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

Stage

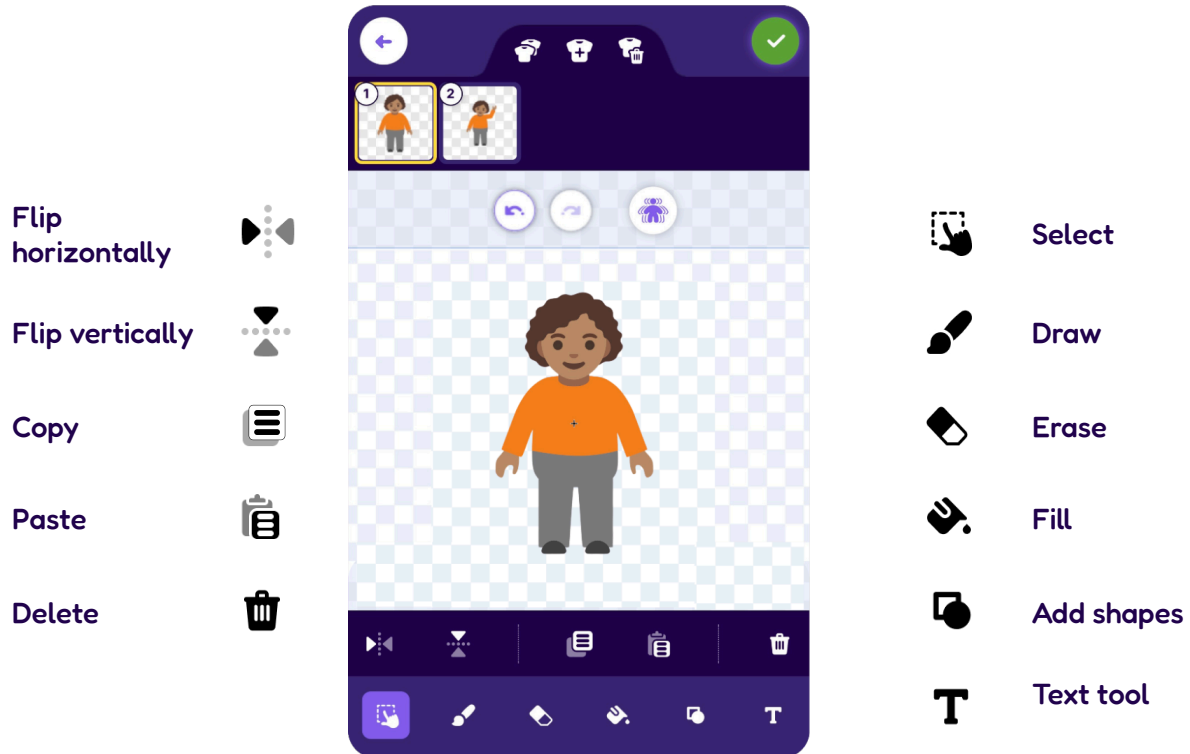


The area of the screen where your project is displayed is called the **Stage**.

The Stage is 320 units wide and 180 units high, forming an x-y grid. The bottom corner of the Stage is at x: 0, y: 0.

Paint Editor

In the paint editor you can draw or edit what sprites look like. You can also add additional costumes for each sprite.



Adding and Editing Costumes

You can edit a sprite and add costumes in the Paint Editor. The costumes buttons appear at the top of the Paint Editor when editing an existing sprite.



Duplicate costume



Add costume



Delete costume

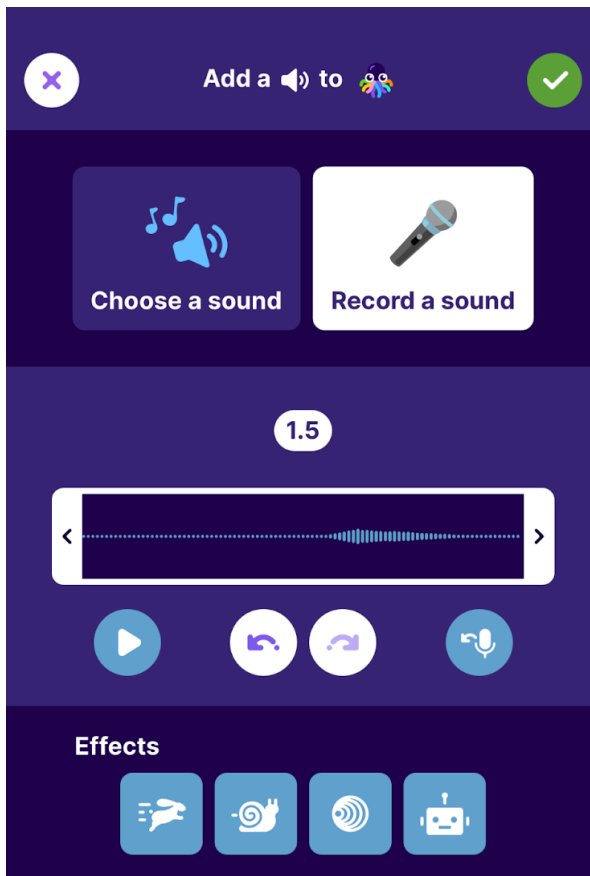
When drawing costumes in the Paint Editor, it can be helpful to toggle on **Onion skin view**. Onion Skin shows a preview of the previous costume along with the currently selected costume. This can be helpful for positioning and aligning costumes for animations.



Onion skin view

Sound Editor

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



Choose a sound or **Record** a sound.

Sound length in seconds

Select to edit

Drag the bars to select part of the sound. To trim, select the part you want to keep and select the Crop button that will appear.



Re-record button allows you to replace the current recording.

Effects

You can add sound effects to a sound. Effects are only added to the selected part of the recording.



Speed up

Make your recording faster



Slow down

Make your recording slower



Echo

Add an echo effect



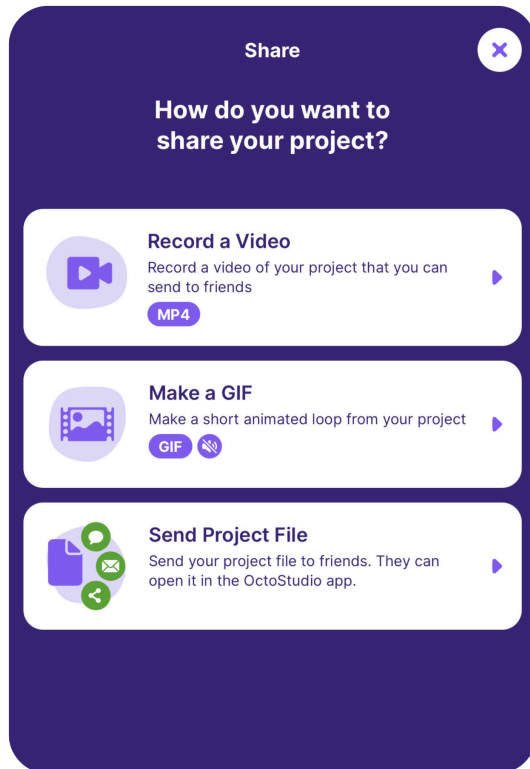
Robot

Add a robotic effect to your recording

Share Menu

You can share your project as a video, GIF or as an OctoStudio project file from the **Share** menu.

 Tap the Share icon at the top of the Project Editor to access the Share menu.



Record a Video

Record a video of your project to share. Each video can be up to 30 seconds long.



Make a GIF

Make a short animated loop from your project. GIFs can be up to 15 seconds long.



Send Project File

There are several ways to send or share an OctoStudio project file.

Send the file to someone: You can send a copy of the file to someone using email, Google Drive, and many other apps installed on your device.

The person receiving the file will need OctoStudio on their device to open and interact with the project.








Save a copy to your device: You can save a copy of the project file to a folder on your device.

Upload to a learning system: After you save a copy of the project file to a folder on your device, you can then upload it to Google Classroom or other learning systems.

Coding Blocks





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	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.

Speed Options

Many blocks have a speed menu that lets you choose how fast you want the block to run.


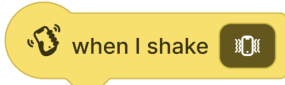




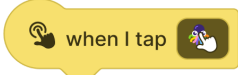



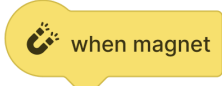
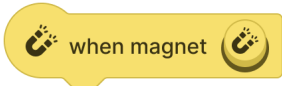
-  Slow
-  Medium
-  Fast
-  Instant

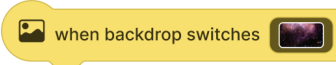
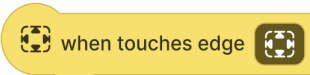
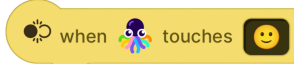
Example:








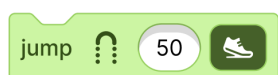




When to start?



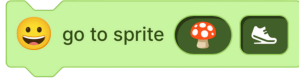


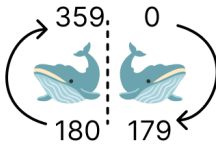

To make something happen in your project, snap blocks below any block in this category.

Block	Description	Tips and Options
	Starts the script when you tap the Play button below the Stage	
	Starts the script when you shake the phone or tablet	Choose how much of a shake is needed to start:  Low  Medium  High
	Chromebook variation: Starts when you press the button on the screen	On Chromebooks , the shake block looks different, as shown. It activates when you press the matching button that appears on the screen.
	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	Move a magnet over the phone or tablet. Try a strong magnet and test different spots on the device.
	Chromebook variation: Starts when you click the button on the screen	To learn more, see the OctoStudio Magnet Blocks video . The magnet feature may not be supported on some Android devices.


Block	Description	Tips and Options
	Starts the script when switching to the selected backdrop	This is helpful for starting code when you change backdrops or scenes. The script will start when the switch backdrop block is halfway through its transition.
	Starts the scripts when the sprite reaches selected edge of the Stage	Only starts if the sprite reaches the edge from inside 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.




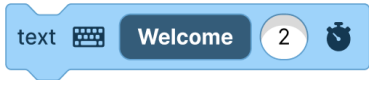
Motion

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. A negative number will jump downward.
	Rotates the sprite a certain number of degrees	Type in an angle from 1 to 360 to make the sprite turn in the direction you choose.  Clockwise  Counterclockwise  Random



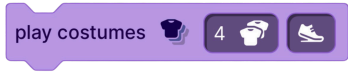

Block	Description	Tips and Options
	Tells a sprite where to go on the Stage	 Tap the map pin icon, then select the location where you want your sprite to go. To set the location, you can drag the sprite, type in numbers, or use random,
	Makes this sprite go to the position of another sprite	 This sprite will go to the rotation point 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. If you want a full rotation, use a turn block instead.
	Moves forward in the current direction	

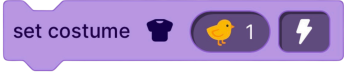







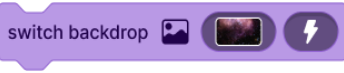



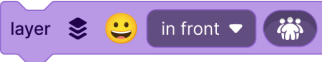

Words and Sounds

Block	Description	Tips and Options
	Plays a library or recorded sound	Tap to choose or record a sound. <ul style="list-style-type: none"> ▶ 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.



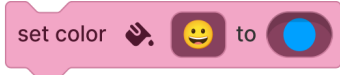


Block	Description	Tips and Options
	Makes the phone vibrate	Only phones with haptic feedback will vibrate. All devices will play a buzz sound.
	Makes your sprite talk aloud	To change language pronunciation, change the language in OctoStudio settings.
	Displays words in a speech bubble	Type how many seconds you want the words to appear for.
	Makes text appear on the Stage as a title or caption	Tap on the text in the block to edit, resize, change color, or change the location of the text which will appear. Each sprite can display only one text box at a time on the Stage. To display multiple text boxes at the same time, use text in additional sprites.

Scene


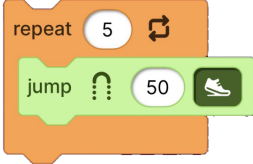


Block	Description	Tips and Options
	Sets sprite's size to specified % of original size	
	Changes sprite's size by specified amount	
	Plays animation by showing each of the costumes in sequence.	 4 The number shows how many costumes will play. Open this menu to edit or hide costumes. You can also choose the speed of the animation.

Block	Description	Tips and Options
	Sets the sprite's costume	<p>Choose a specific costume, or select previous, next, or random.</p> <ul style="list-style-type: none">  previous  next  random <p>You can also set the speed to control how long the block takes to run.</p> <p> To edit or rearrange costumes, click the pencil button within the costume selection menu.</p>
	Makes sprite disappear from the Stage	<p> To hide a sprite immediately, choose lightning speed.</p> <p>Hidden sprites do not interact with other sprites.</p>
	Makes sprite appear on the Stage	<p>Change a sprite's transparency by entering a number below 100. At 0, the sprite is invisible but still interactive.</p>
	Sets backdrop to the selected backdrop	<p>Choose a specific backdrop, or select previous, next, or random.</p> <ul style="list-style-type: none">  previous  next  random <p>You can also choose how fast the backdrop switches.</p>
	Layers a sprite in front or behind of another sprite	<p>Option to layer in front of or behind a specific sprite or all sprites.</p> <ul style="list-style-type: none">  all sprites

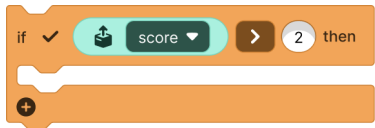
Colors and Light

Block	Description	Tips and Options
	Creates a colorful glow around sprite	Choose the color of the glow.
	Turns on or off flashlight on phones or tablets that have a built-in flashlight	Resets to off when you press the stop or play button. If your device doesn't have a built-in flashlight, you may see the stage brighten instead.
	Sets sprite or backdrop to a certain color	Options: set color of sprite or backdrop.  To reset, set color to no color.
	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 block. Example: 
	Runs the script inside over and over until the project stops.	Snap blocks inside the “mouth” of the forever block. Example: 

Block	Description	Tips and Options
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Checks once if a condition is true. If so, it runs the blocks inside

Because the **if** block only checks once, it usually works best in a **forever** block,



You can insert a number, variable, or other reporter.

⊕ Tap the plus symbol to add an **else** to this block, Tap again to add an **else if**,



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** or tablet.

Chromebook variation:
The option **shake** is replaced with **pressed** to indicate pressing the on-screen button that will appear. See the **OctoStudio on Chromebooks** section at the end of this guide to learn more.



Stop scripts or sounds that are running

The options are to **stop this script**, **stop all sounds**, **stop other scripts** in this sprite, or **stop all scripts** in the project.

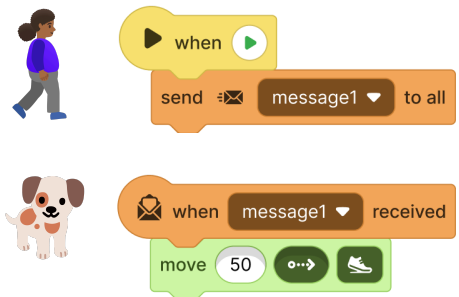


Sends a message that all sprites can receive

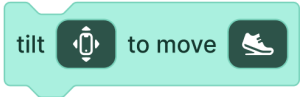




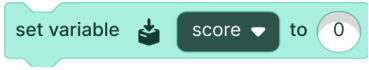
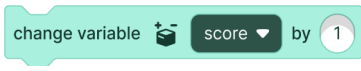



Example of **send** and **receive**:


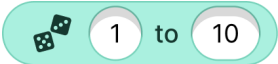



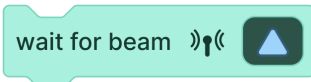
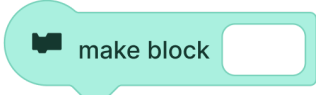


Starts the stack when the selected message is received



More Blocks

Block	Description	Tips and Options
	<p>Tilt your phone or tablet to move the sprite</p> <p>Chromebook variation: To interact, use the tilt controller that appears on the screen. See the OctoStudio on Chromebooks section at the end of this guide to learn more.</p>	<p>Works best in a forever block. (This is why when you drag in this block, it comes with a forever block.)</p> <p>Tilt motion options:</p> <ul style="list-style-type: none">  Horizontal only  Up and down only  All four directions <p>Flip: Choose whether the sprite will automatically flip which way it faces when tilting horizontally.</p> <p>Phone or Tablet: Hold at desired angle before pressing play.</p>
	<p>Reports the angle your phone is being tilted in, either horizontal or vertical</p>	<p>The angle value that this block returns is scaled down to 1/4.</p> <p>Chromebook: The tilt controller is active only while the block is running.</p>
	<p>Sets the selected variable to a specified number</p>	<p>To create a new variable, tap + in the menu. Variable names cannot currently be deleted.</p>
	<p>Changes the selected variable by a given amount</p>	
	<p>Displays or hides variable monitor on the Stage</p>	<ul style="list-style-type: none">  To hide the variable, choose off <p>Variables default to being displayed on the Stage.</p>
	<p>Returns the current number value of a variable</p>	<p>You can snap this block into any rounded slot inside another block</p>

Block	Description	Tips and Options
	Reports the size or other info about the sprite	Options to report a sprite's direction, size, costume, x-position, or y-position.
	Picks a random number within the specified range	
	Performs a certain mathematical operation on two values	Select from menu: + addition - subtraction × multiplication ÷ division
	Sends message via Bluetooth to other nearby devices using OctoStudio	Enable Bluetooth on your device before sending or receiving a beam. The beam block broadcasts a message to all nearby devices using OctoStudio.
	Chromebooks cannot beam, but can receive a beam from a mobile phone or tablet	There are different messages you can beam: 
	Runs script below when it receives the specified beam message via Bluetooth	You can also add a channel within the beam blocks. This is useful when you have multiple groups of people working on different beam projects in the same location to avoid conflicting beams.
		The range of the beam block is approximately 30 feet (10 meters).
	Create a custom block.	Custom blocks can make your code more organized. All custom blocks will appear in 'More Blocks' at the end of the blocks palette.
	Name your block and then snap blocks below to define what your new block will do.	Custom blocks are specific to a sprite.

Installation and Settings

Settings

Where to find Settings?

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

Languages

OctoStudio is offered in more than 30 languages. You can change languages anytime in Settings.

Screen Layout

On larger tablets you may see an option to choose between **Portrait** or **Landscape** view.



Accessibility

To use OctoStudio with a **screen reader**, turn on the built-in screen reader on your device (**VoiceOver** in iOS and **TalkBack** in Android).

In OctoStudio Settings, you can also toggle on **Sound effects for code blocks**. This will make a sound play for any code block with visual output. (For example, you can hear a sound effect when you play the jump or glow block.)

Interface Options

If you turn on **Show Screen Taps**, you will see a circle that shows the location of your fingers whenever you touch the screen. This is helpful when demonstrating how to use OctoStudio.

Getting Started

Starter cues are the animated hand icons that show the first steps for using OctoStudio. You can turn on Starter Cues in Settings anytime.

Further Information

For more information, ideas, and technical support, please see our OctoStudio [Support](https://octostudio.org/support) pages at octostudio.org

System Requirements

OctoStudio can run on the following devices:

On an **iPhone** or iPad, iOS version 15 or above.

On an **Android** phone or tablet, Android version 8 or above.

On **Chromebooks** that support Android apps.

OctoStudio is not yet supported on other laptops or desktop computers.

OctoStudio on Chromebooks

OctoStudio on Chromebooks is different in a few ways from OctoStudio on mobile phones or tablets.

Sensing

Most Chromebooks do not have physical sensors. So, on Chromebooks, there is a different way to interact with sensor blocks.



For **tilt** blocks, you can interact using the tilt controller that appears on the screen when the code runs.



For **shake** or **magnet** blocks, you can interact using the buttons that appear on the screen.

Beam

Chromebooks cannot send a beam, so the **beam** block won't work on a Chromebook. However, Chromebooks can receive a beam from a mobile phone or tablet, so **when beam received** blocks will work well using Bluetooth.

Camera

Unlike mobile devices, Chromebooks usually only have a front facing camera.

To activate a camera on a Chromebook, you can click the button on the screen or press the Space or Enter key on the keyboard.

An alternative way to add photos is by taking a photo with a mobile phone or tablet, and sending them to the Chromebook.

File Saving Options

You can save a copy of the project file to a folder on your device or to **Google Drive**. You can then upload the file to **Google Classroom** or other learning systems.

Chromebook Trackpad Tips



To **scroll**, use two fingers on the trackpad.

To **zoom in**: Put two fingers on the trackpad and slowly move them apart.

To **zoom out**: Put two fingers on the trackpad and pinch them together.

To **drag**, press down on the trackpad and move with one finger. Or, you can use one finger to press down and a different finger to move.

Support

If you have questions, please visit the [Support](#) section on the OctoStudio website or email us at help@octostudio.org