



# CoBlocks reference guide



Last updated: June 2020

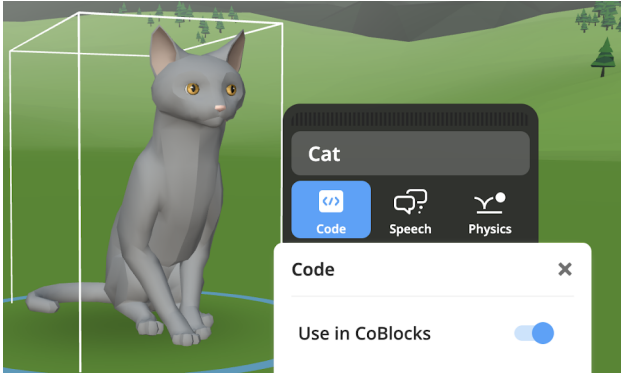
Learn CoBlocks with  
this reference guide

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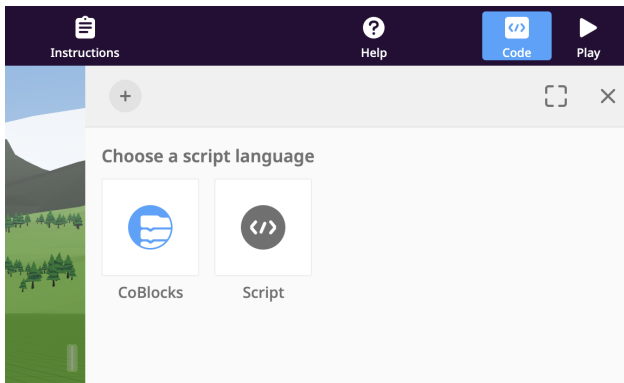
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# 1. Before you get started



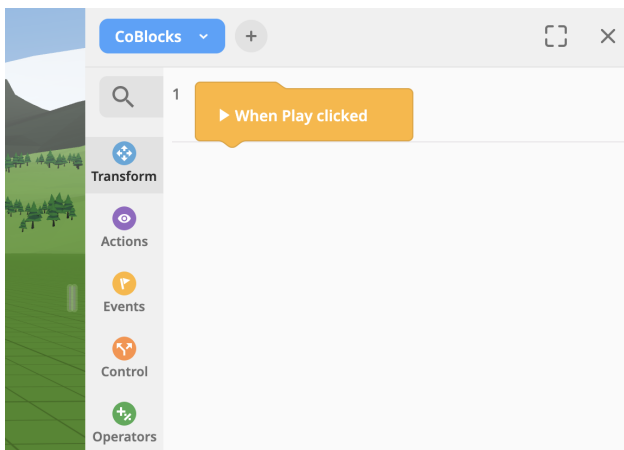
Before working in CoBlocks, right-click or double-click the objects that you want to program and click **Code**.

Then, enable their **Use in CoBlocks**.



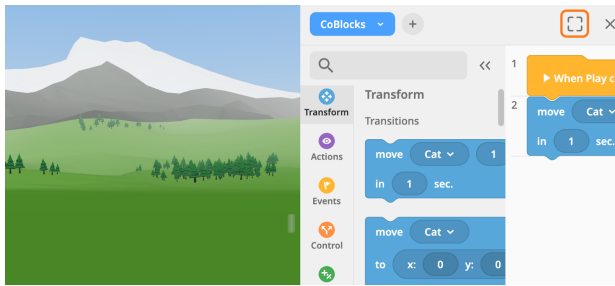
If you haven't created a CoBlocks script before, open the code editor by pressing the **Code** button in the toolbar at the top.

Then, choose **CoBlocks** as your coding language.

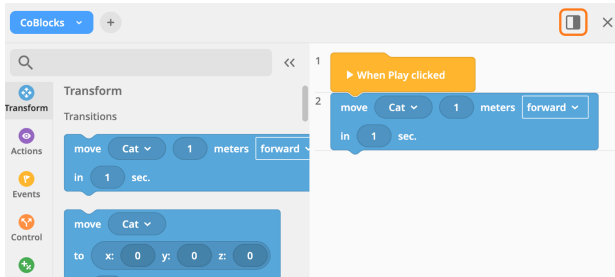
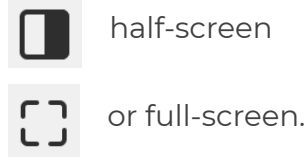


The empty space on the right side is the **CoBlocks workspace**.

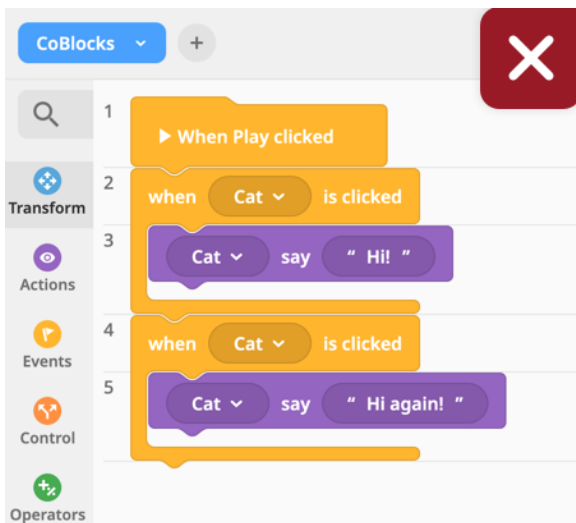
The list of CoBlocks on the left side is the **CoBlocks toolbox**.



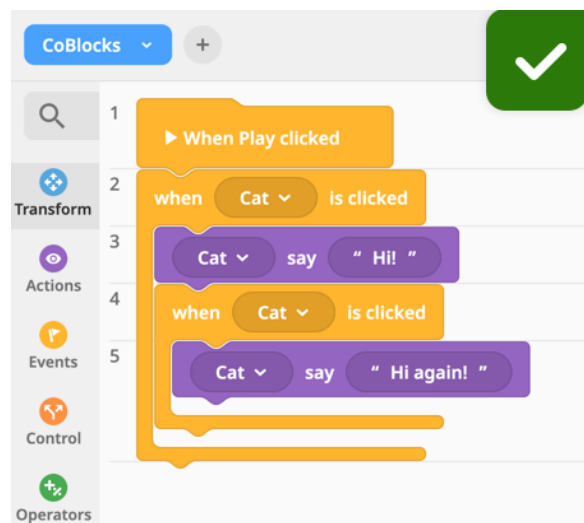
If the coding space gets too small, you can always **expand** the coding editor to **full-screen**. Click the **window toggle** button to turn it:



When creating events on items, remember that only **one event per type** (click, hover, collision) is **allowed on an item** at any given time.

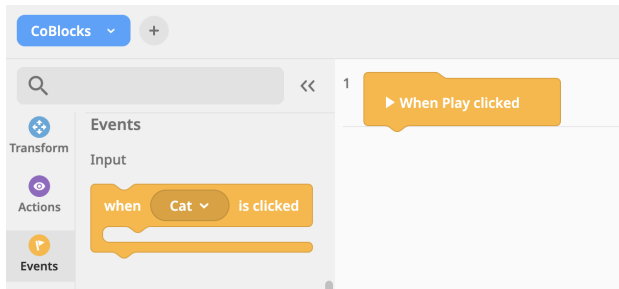


*Only the second click event of this item will happen. The first is ignored.*

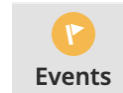


*Both the first and the second click events will happen on different clicks.*

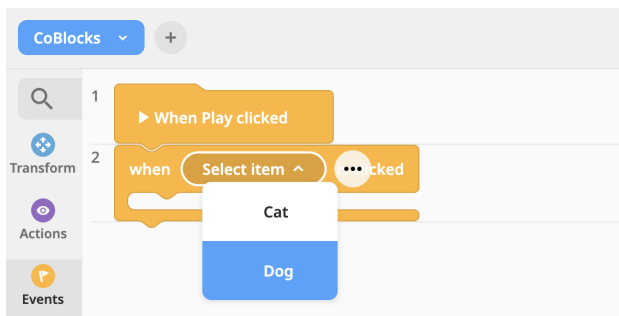
## 2. Moving left, right, forward, backward



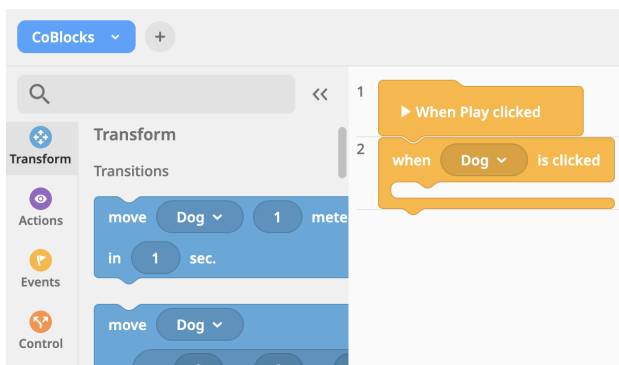
Click **Events** in the toolbox's left menu:



Click and drag the yellow **when item is clicked** CoBlock from the toolbox and drag it into the workspace.



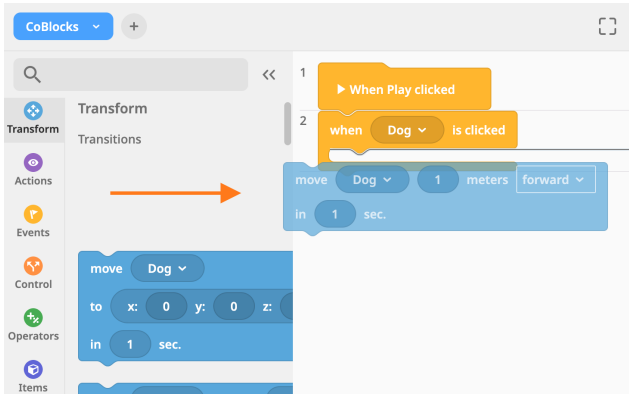
Click the **down arrow** and **select the item** that you want to activate.



Next, click **Transform** in the toolbox:



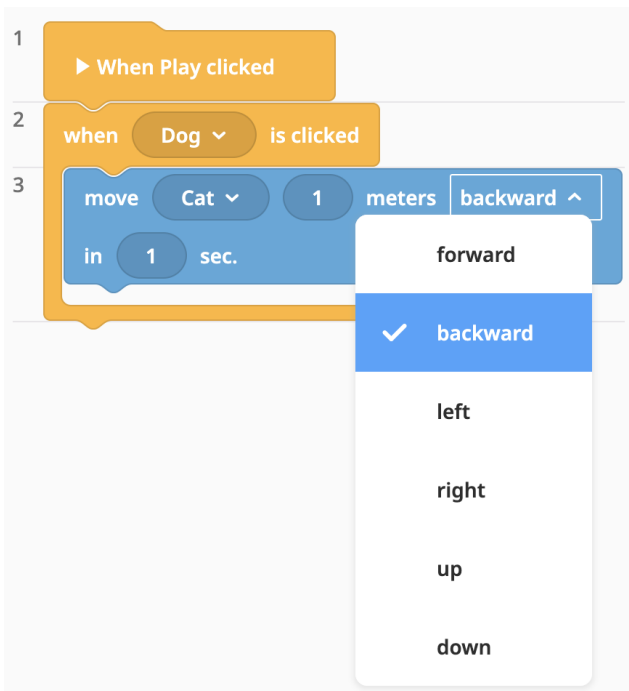
Choose simple transitions (**move item \_ meters...**) or more complex ones (using x, y, z coordinates).



Click and drag the CoBlock you want to use into your workspace.

Line up the **blue CoBlock** inside of the **yellow CoBlock**.

A black line will be visible under the **connector bump**. Place your blue CoBlock there so they connect.



Use the **dropdown** arrow to select the item you want to move and the direction of the movement.

Type in the number of meters the item should travel and the speed in seconds.

Click **Play** to test your item:

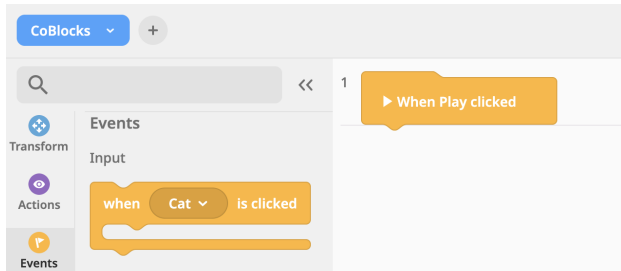


When you click the item you've programmed, watch the movement happen.

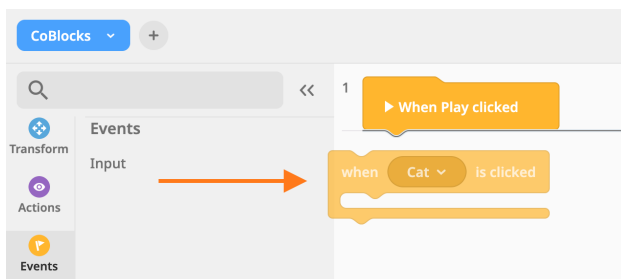
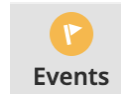
## 2. 1. Alternatives

- If you want the item to move when the cursor hovers, choose the **Hover** CoBlock.
- If you want to add an action when your item bumps into another item, add a **Collision** CoBlock.
- Include more than one action by connecting more purple CoBlocks inside the **Activate** CoBlock.

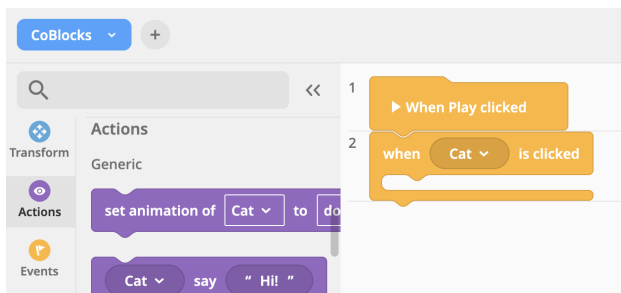
# 3. Creating a color change



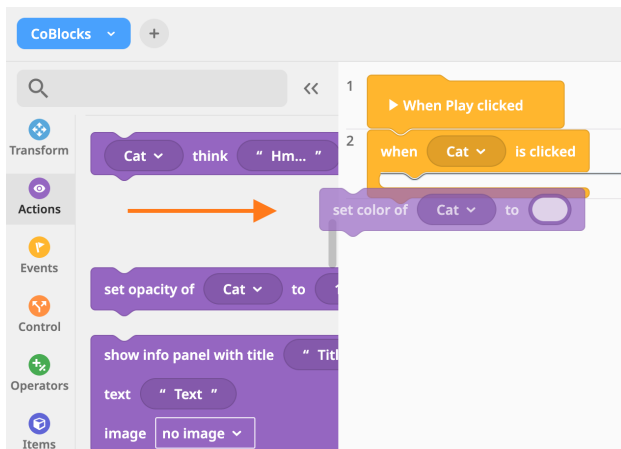
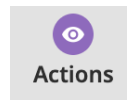
Click **Events** in the toolbox's left menu:



Click and drag the yellow **when item is clicked** CoBlock from the toolbox and drag it into the workspace.



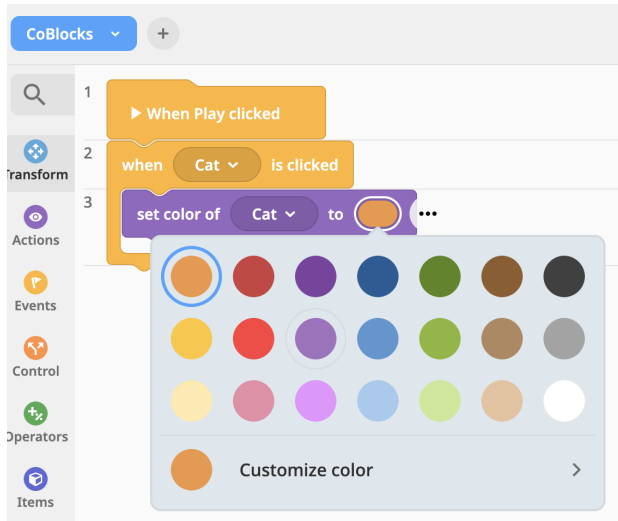
Click **Actions** in the toolbox's left menu:



Click and drag the purple **set color** CoBlock into your workspace

Line up the **purple CoBlock** inside of the **yellow CoBlock**.

A black line will be visible under the **connector bump**. Place your purple CoBlock there so they connect.



Click the **down arrow**, and then select the item you want to change color.

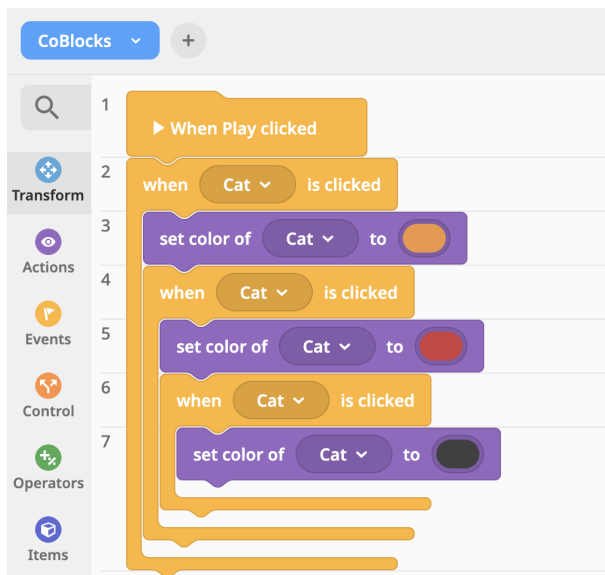
Click the **color bubble** and then select which color you want to use.

Click **Play** to test your code: 



When you click on the item you've programmed, watch the color change.

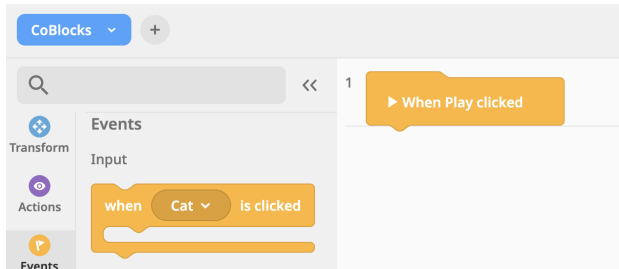
### 3. 1. Alternatives



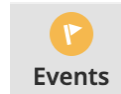
If you want the item to change color each time it is clicked, add extra **when item clicked** CoBlocks inside of the original CoBlock.



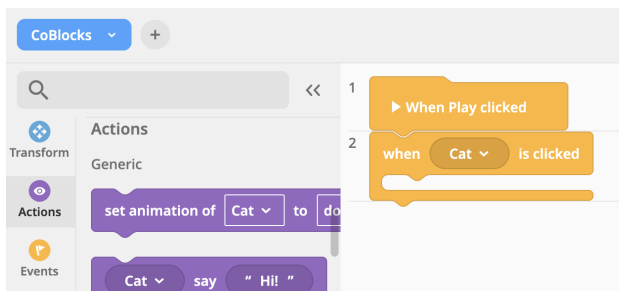
## 4. Adding pop-up speech bubbles



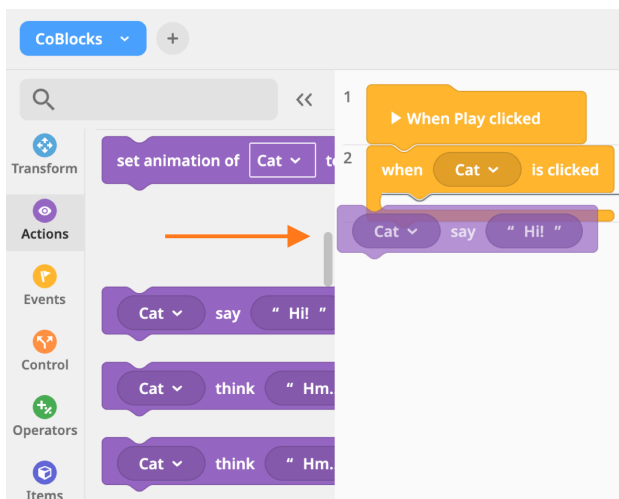
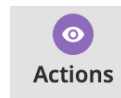
Click **Events** in the toolbox's left menu:



Click and drag the yellow **when item is clicked** CoBlock from the toolbox and drag it into the workspace.



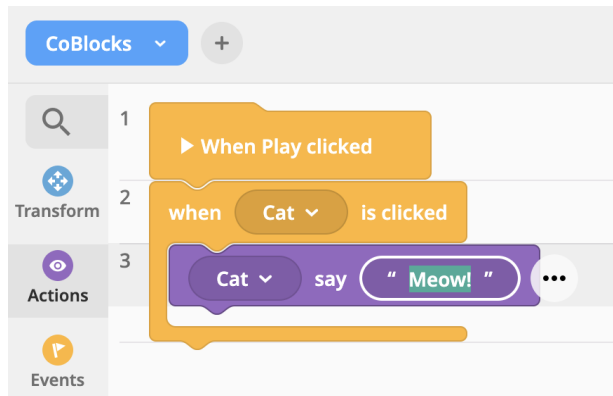
Click **Actions** in the toolbox's left menu:



Click and drag the purple **say** or **think** CoBlock into your workspace.

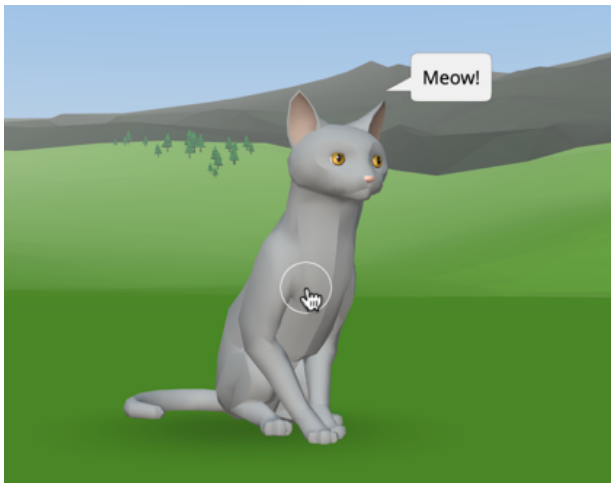
Line up the purple CoBlock **inside of the yellow** CoBlock. A black line will be visible under the **connector bump**. Place your purple CoBlock there so they connect.

Click the **down arrow**, and then select the item you want to speak.



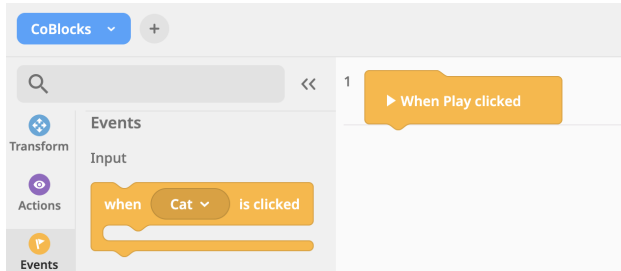
Click on the text and type the words you want spoken.

Click **Play** to test your code:

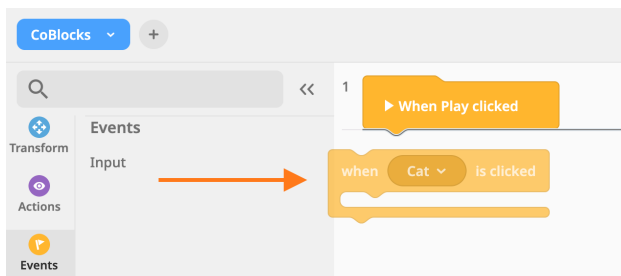
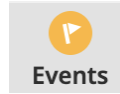


When you click on the item you've programmed, watch the speech bubble pop up.

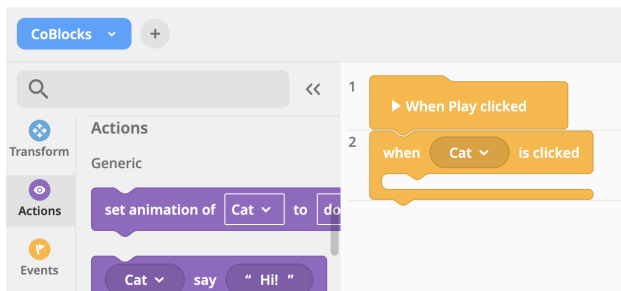
# 5. Adding pop-up fact panels



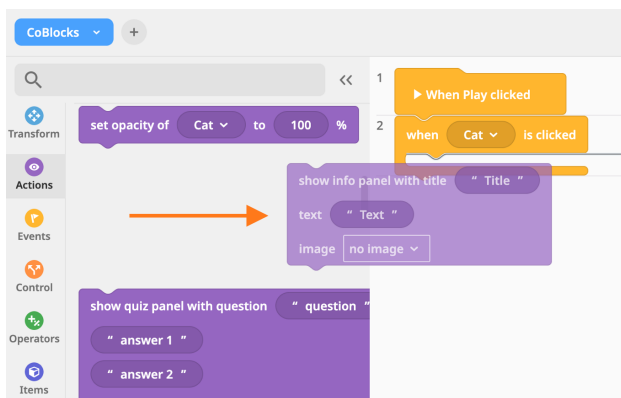
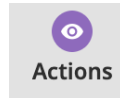
Click **Events** in the toolbox's left menu:



Click and drag the yellow **when item is clicked** CoBlock from the toolbox and drag it into the workspace.



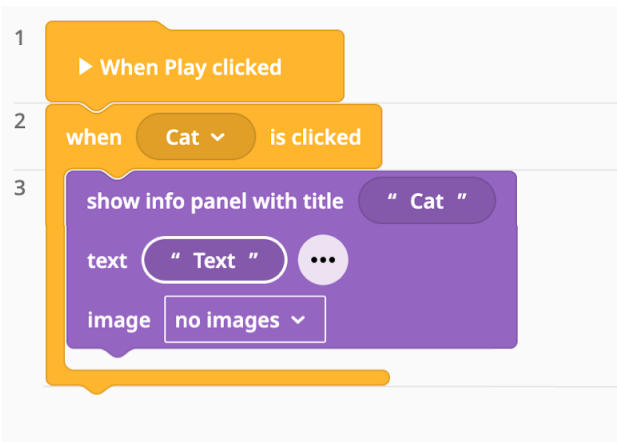
Click **Actions** in the toolbox's left menu:



Click and drag the purple **show info panel** CoBlock into your workspace.

Line up the purple CoBlock **inside of the yellow** CoBlock. A black line will be visible under the **connector bump**.

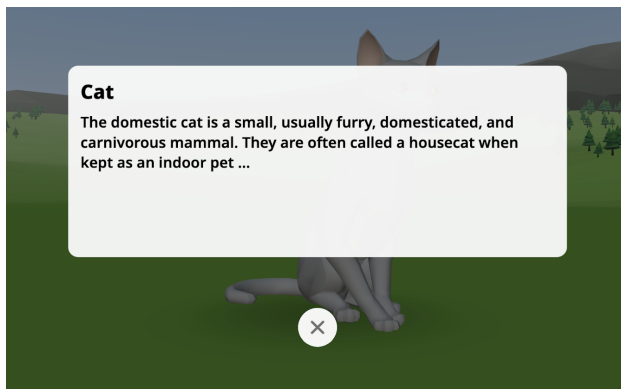
Place your purple CoBlock there so they connect.



Click on the **title** and type the topic of the panel. Click on **text** and type the information you want included.

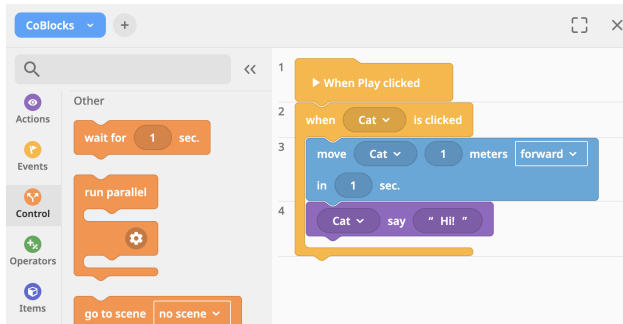
You can also add an **image** to the **info panel** by adding it to your scene and enabling its use in CoBlocks.

Click **Play** to test your code:

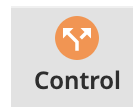


When you click on the item you've programmed, watch the info panel pop up.

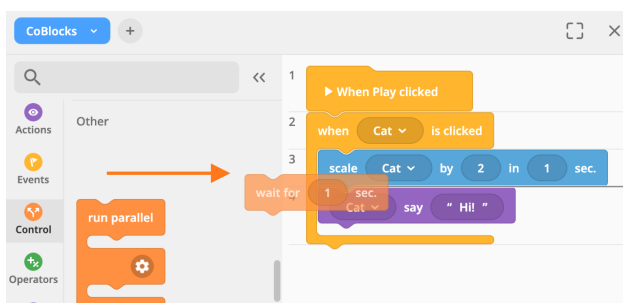
## 6. Setting a timer to events



Click **Control** in the toolbox:

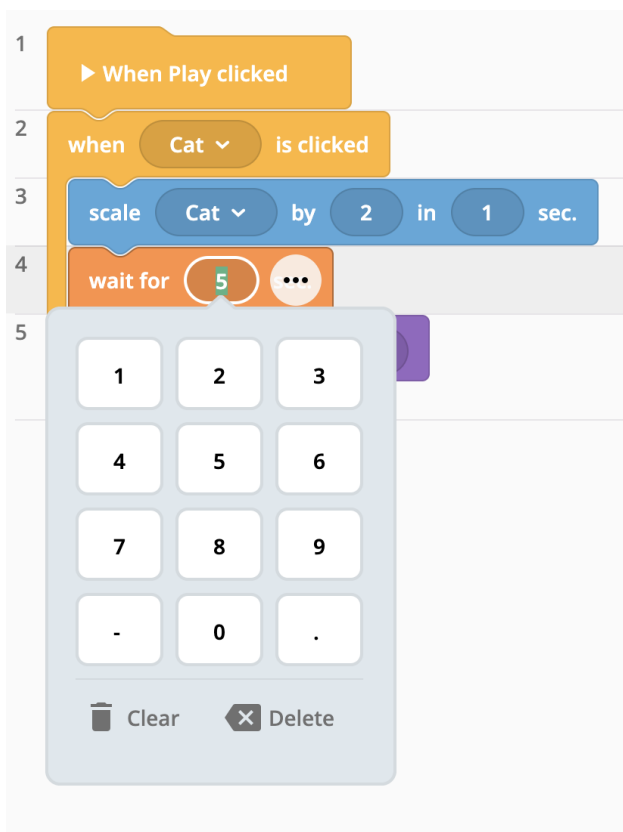


And scroll to the **Other** subcategory.



Click and drag the orange **wait** CoBlock into your workspace.

Connect the **wait** CoBlock above the action you want delayed.



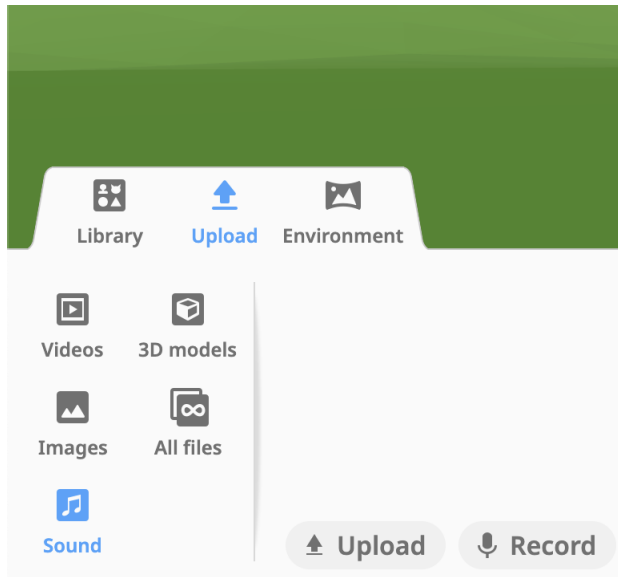
Type the number of seconds to delay the action.

Click **Play** to test your code:

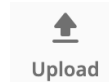


When you click on the item you've programmed, watch for the delayed action.

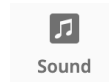
## 7. Activating sound



Click **Upload** on the bottom tab:



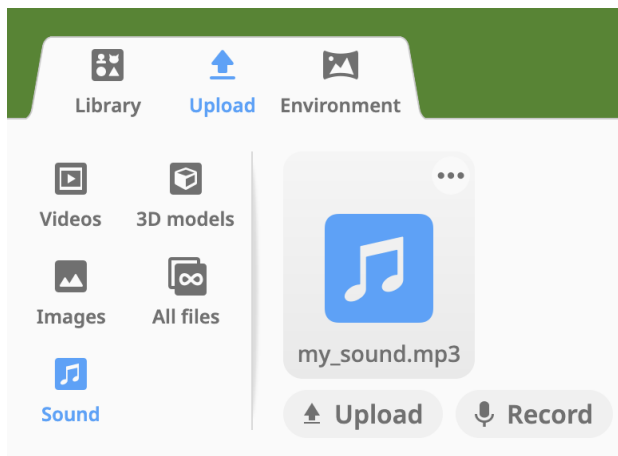
Then, click **Sound**:



Click **Upload** button at the bottom of the menu:

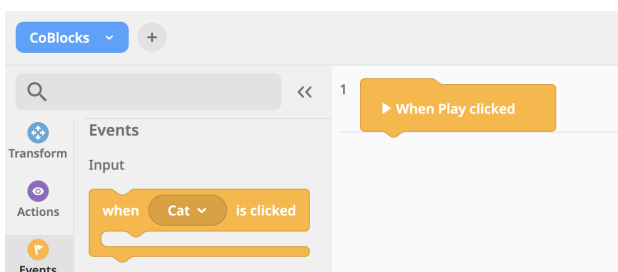
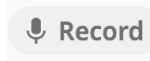


and choose an **MP3** sound file from your downloads menu, then click **Open**.

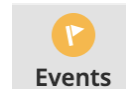


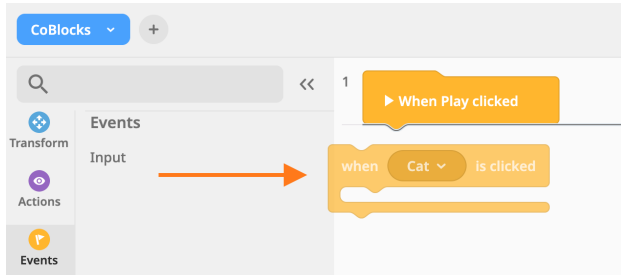
This will load it into the **Upload** tab.

You can also record your own sound file by clicking on **Record** in the menu:

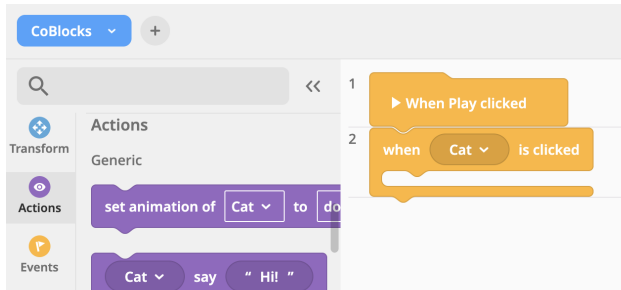


Click **Events** in the toolbox's left menu:

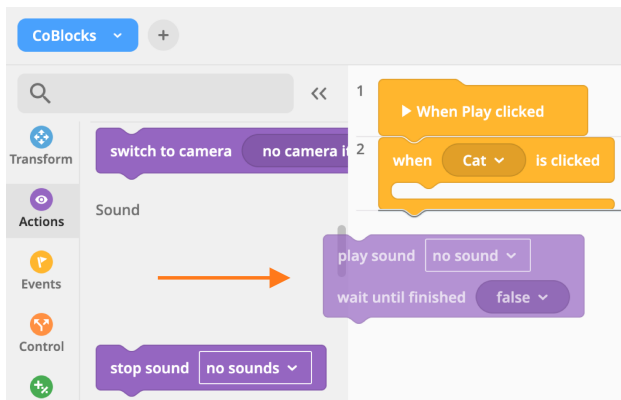




Click and drag the yellow **when item is clicked** CoBlock from the toolbox and drag it into the workspace.

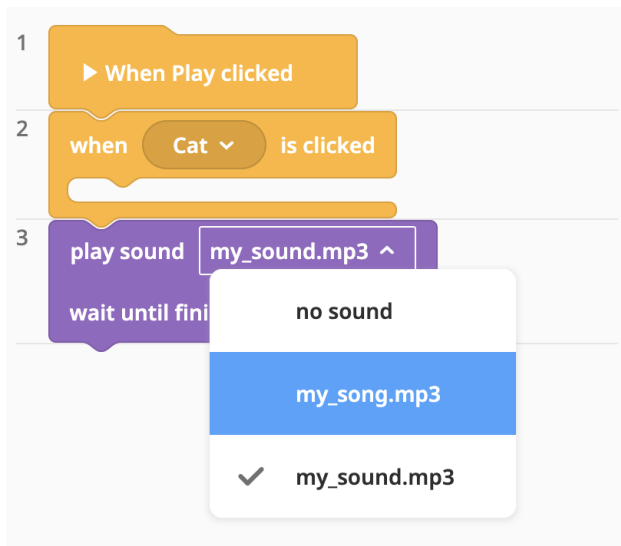


Click **Actions** in the toolbox's left menu:



Click and drag the purple **play sound** CoBlock into your workspace

Line up the **purple CoBlock** inside of the **yellow CoBlock**. A black line will be visible under the **connector bump**. Place your purple CoBlock there so they connect.



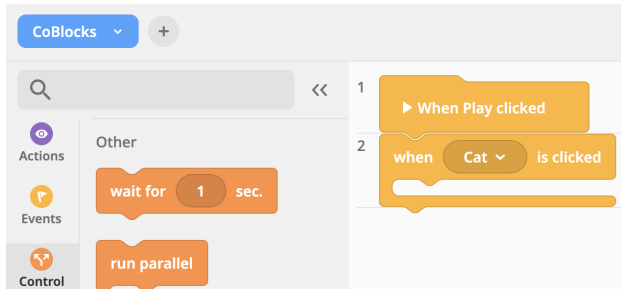
If you have more than one sound uploaded, click the **down arrow**, and then **select the item** you want to activate.

Click **Play** to test your code:

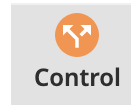


When you click on the item you've programmed, listen for your sound.

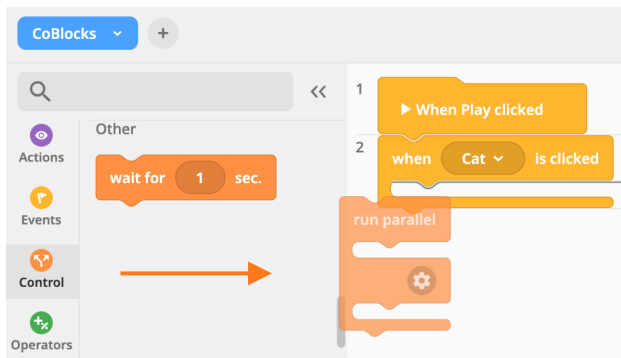
## 8. Multiple actions at once



Click **Control** in the toolbox:

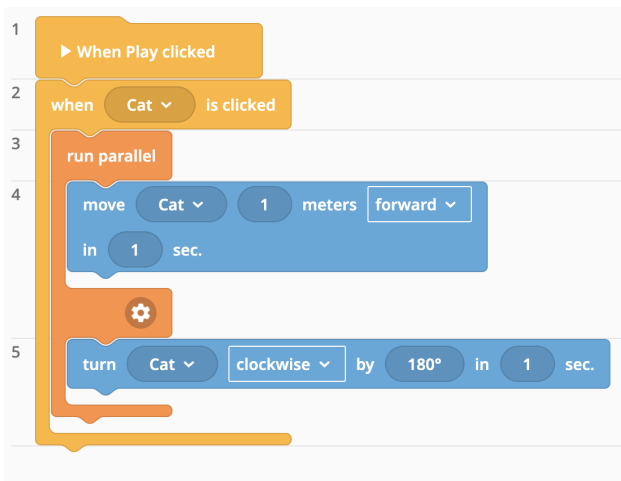


And scroll to the **Other** category.



Click and drag the orange **run parallel** CoBlock into your workspace.

Place the **run parallel** CoBlock into an event CoBlock.



Place the task you want to happen at the same time in the top and bottom part.

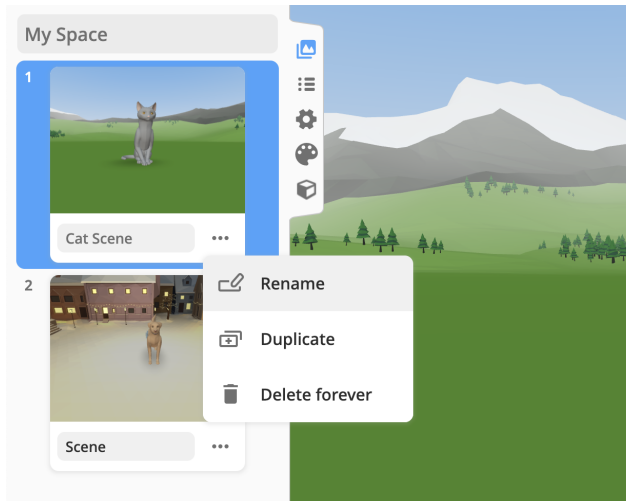
Click **Play** to test your code:



When you click on the item you've programmed, watch for the actions to occur at the same time.



## 9. Switch to a new scene

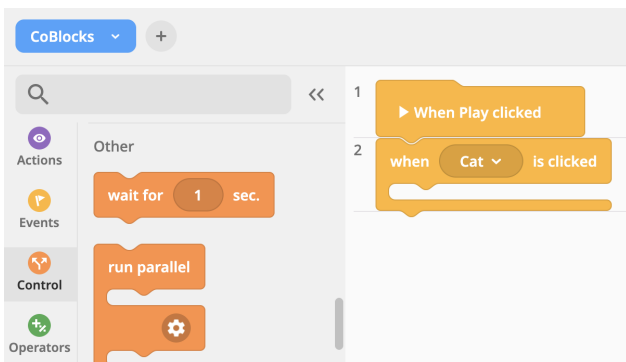


Click the **scene** icon in the right menu:

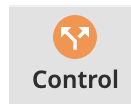


Click the **three dots** on the thumbnail for your scene to name it.

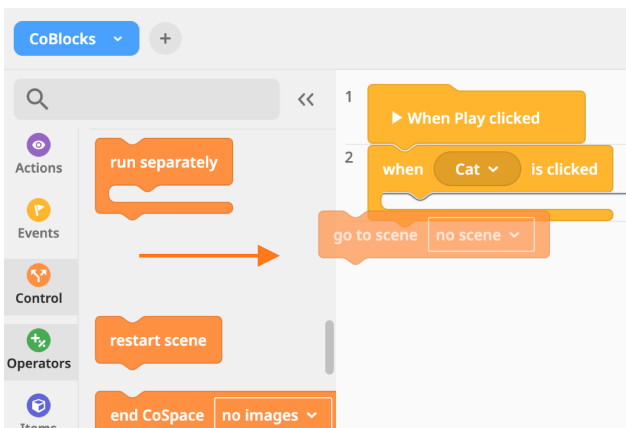
Be sure to label every scene.



Click **Control** in the toolbox:



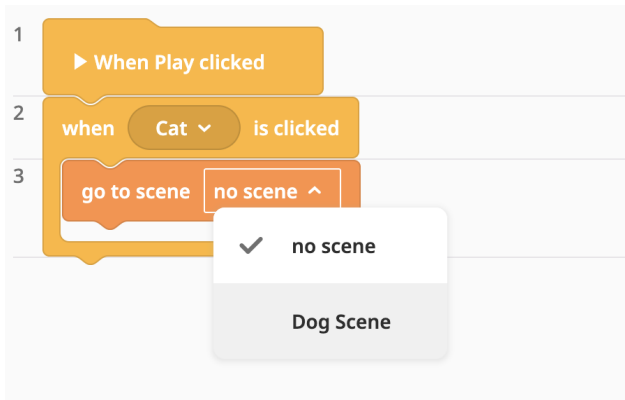
And scroll to the **Other** category.



Click and drag the orange **go to scene** CoBlock into your workspace.

Place the **go to scene** CoBlock at the end of your code where the scene change should occur.

Be sure to place it into an event CoBlock!



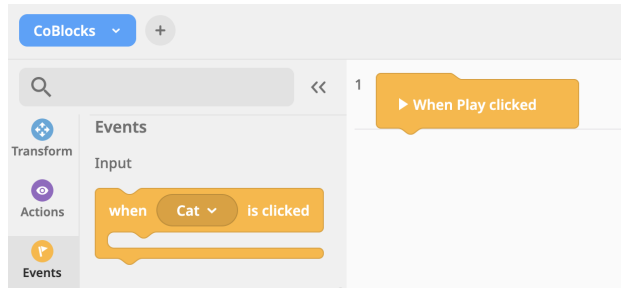
Click the down arrow on the **go to scene** CoBlock to select the scene you wish to jump to.

Click **Play** to test your code:

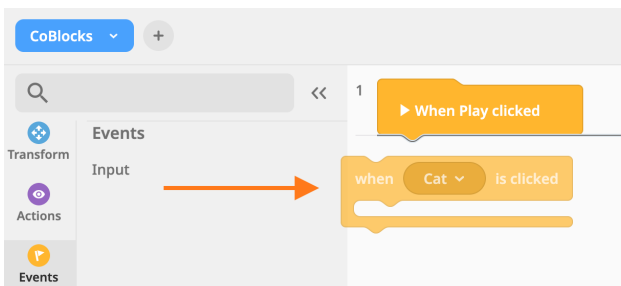
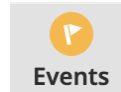


Watch for the scene to change at the right time.

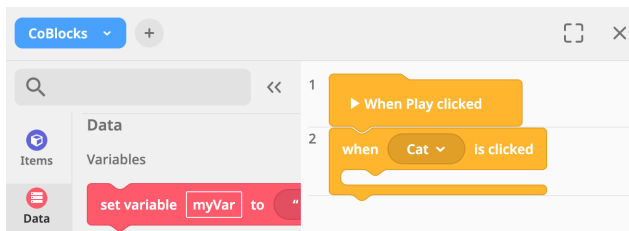
## 10. Keeping score



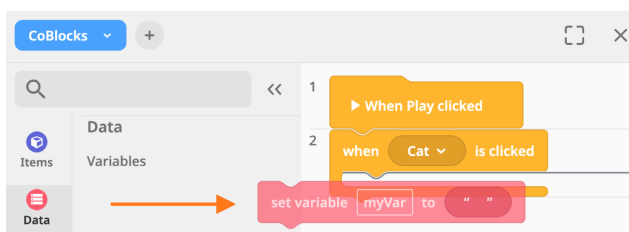
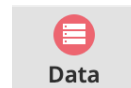
Click **Events** in the toolbox's left menu:



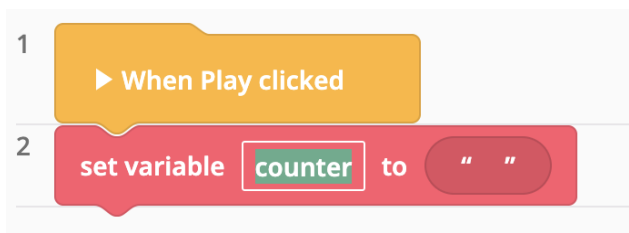
Click and drag the yellow **when item is clicked** CoBlock from the toolbox and drag it into the workspace.



Click **Data** in the toolbox::

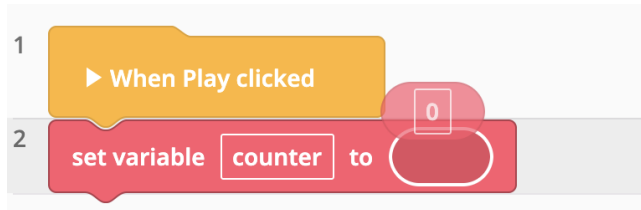


Drag the **set variable** CoBlock into the workspace.

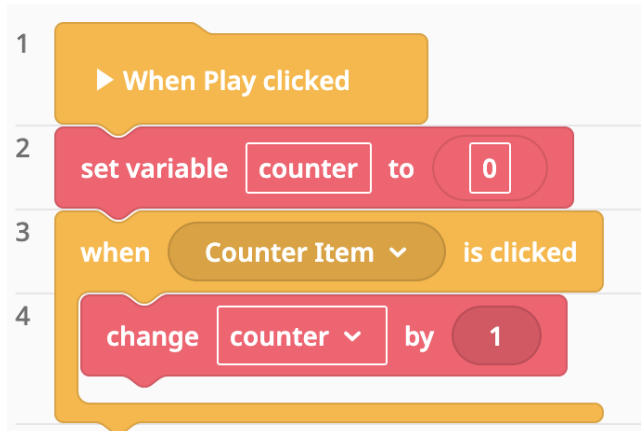


Click **myVar** and give your variable a new name (here: **counter**).

It will pop up as round CoBlock in the **Variables** subcategory now.



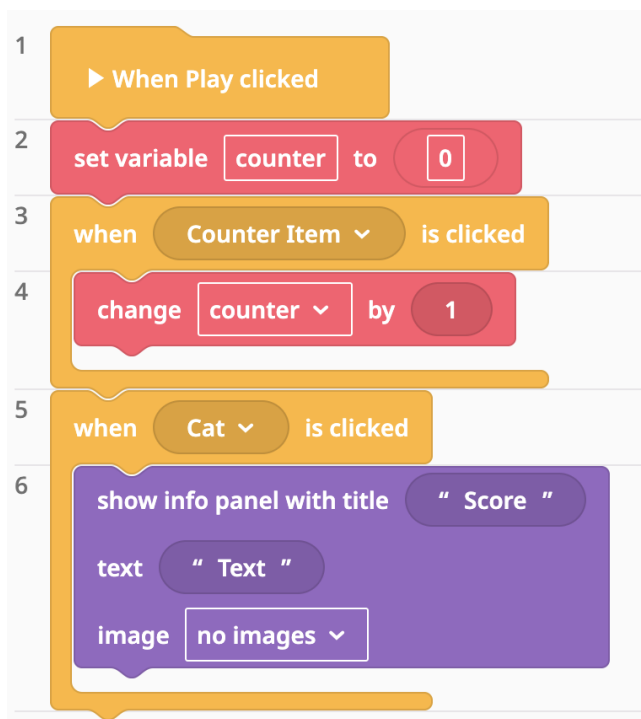
Drag the number CoBlock [0] from the **Values** subcategory and place it into your **set variable** CoBlock.



Drag and drop the **when item is clicked** CoBlock. Click the **down arrow** and select an item (any object in your scene) which when clicked, will change the counter's value by 1 (here: **Counter Item**).

Find the **change variable** CoBlock. Drag and drop it into a **click event** CoBlock.

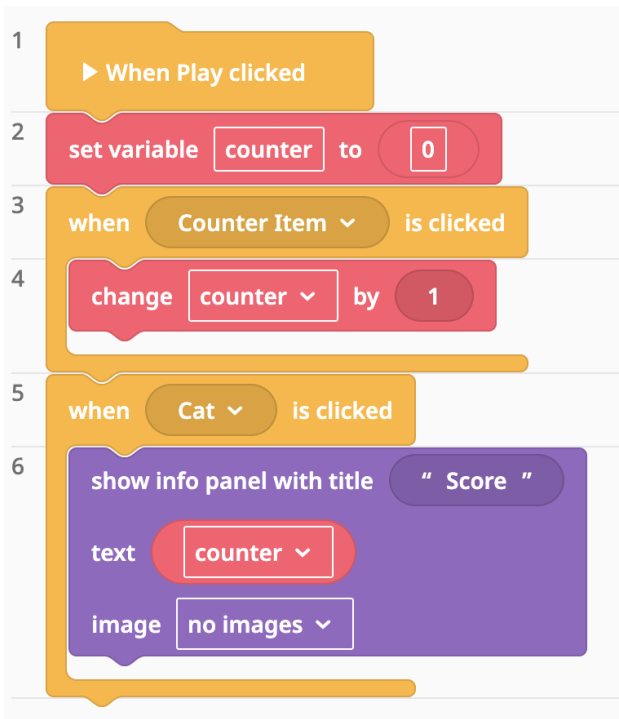
If you have more score variables, select the one you want to increase.



Drag and drop the **when item is clicked** CoBlock. Click the **down arrow** and select an item (any object in your scene) which when clicked, will make the pop-up panel appear (here: **Cat**).

Create a **pop-up panel** (see [Adding pop-up fact panels](#)).

Drag and drop it into a **click event** CoBlock. Type a title in the **pop-up panel** (it should indicate that this is a score).



Find the **variable** CoBlock. It has the same name as the variable name you defined (here: **counter** ).

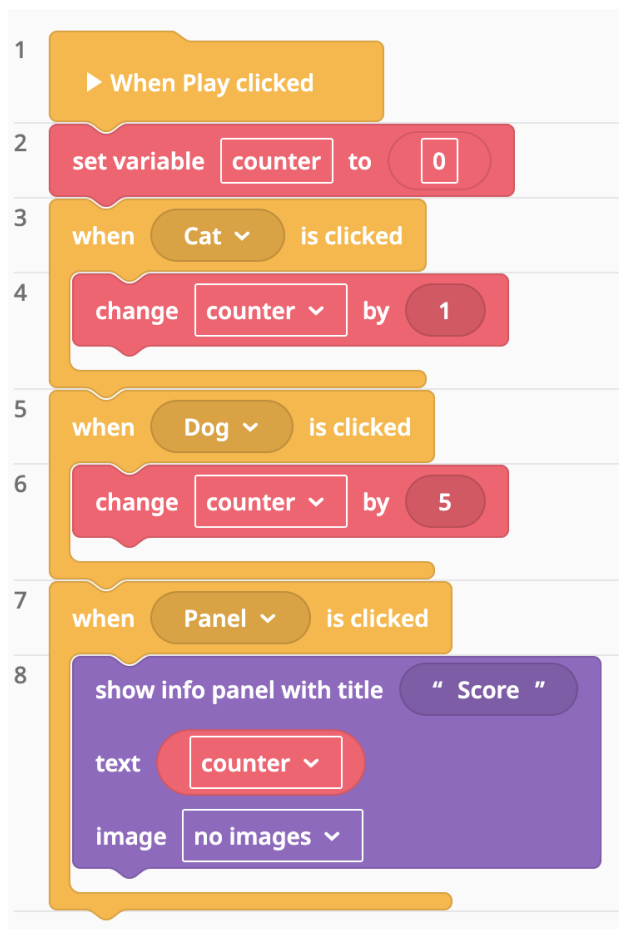
Drag the **variable** CoBlock into the **text** field of the **show info panel** CoBlock.

Click **Play** to test your code:



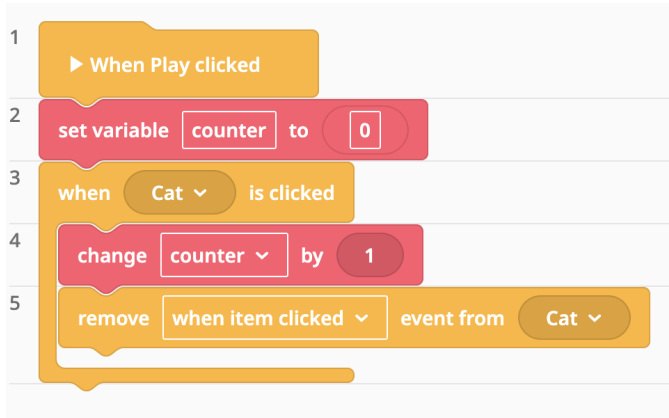
Watch for the scene to change at the right time.

Click the item you've programmed a few times, then check the panel for your score.



You can change the counter variable with different items.

In this example, the score is calculated based on the clicks of two items (here: **cat** and **dog** ).



To make items only clickable once, you can use the **remove events** CoBlock after the event happens.

# 11. Get support on the forum

The **CoSpaces Edu online forum** is open to anyone looking to get support and has a specific **Coding** section where you can post questions about coding with CoBlocks.

The screenshot shows the CoSpaces Edu forum interface. At the top, there is a navigation bar with the CoSpaces Edu logo, 'Sign Up', 'Log In', a search icon, and a menu icon. Below the navigation bar, there are filters for 'all categories', 'Categories', 'Latest', and 'Top'. The main content area is divided into two columns: 'Category' and 'Latest'.

Category	Topics	Latest
<b>Announcements</b> Welcome to the CoSpaces Edu forum!	6	<b>Advanced rotation direction with Z-axis</b> CoBlocks 0 7h
<b>General</b> Are you looking for general information about CoSpaces Edu? Then this is the thread for you! You can use this section to post your own questions if they haven't already been asked, discuss different features and their many possibilities or simply connect with other educators around the world! Accounts Hardware Licenses Classroom	213	<b>Hello, I'm having a little problem with priority of key presses</b> CoBlocks 3 1d
<b>Building, Viewing and Sharing</b> Here you can find the answers to building-related questions, like how do I resize an object, can I import my own 360 images or is it possible to use external objects such as .stl files. Assets Import MERGE Cube	278	<b>Making CoSpaces Edu more inclusive</b> 16 3d
<b>Coding</b> CoSpaces Edu is a great tool for coding! With the use of CoBlocks and script languages, you and your students can make your virtual creations come to life. In this thread, you'll find the answers to many different coding topics, from the basics of writing scripts to coding collision detection. Wheth... CoBlocks	480	<b>Add Pro teachers to a class</b> Licenses 4 3d
<b>Tutorials</b> Welcome to the CoSpaces Edu tutorial thread - a place where the community and the CoSpaces Edu team can post guides and tutorials, learn more about the tools that CoSpaces Edu has to offer and demonstrate how they code their virtual worlds!	49	<b>Continuing music into the next scene</b> Coding 4 3d
		<b>Testing for education</b> 0 3d
		<b>How to become pro</b> 0 3d
		<b>360° photo environment character scaling</b> Building, Viewing and Sharing 4 4d

To join the forum, go to: [forum.edu.cospaces.io](https://forum.edu.cospaces.io)