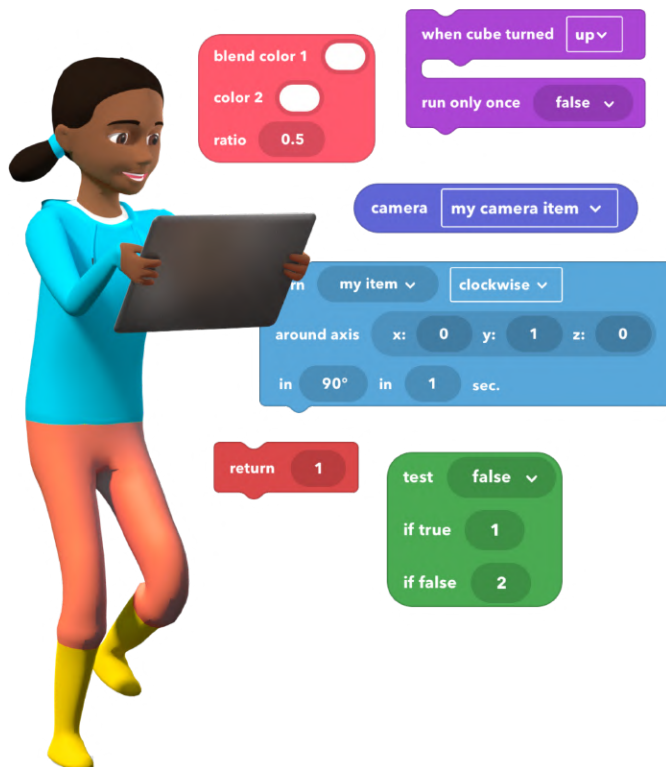




CoBlocks

sheet

PRO



Choose the right
CoBlocks

All CoBlocks simply
described and
represented

Table of contents

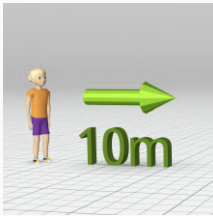
Transform	3
Transitions	3
Position	5
Rotation	5
Scale	6
Actions	7
Generic	7
Sound	9
Video	9
Events	11
Input	11
Collision	11
Web	12
Other	12
Control	13
Loops	13
If	14
Other	14
Operators	16
Logic	16
Math	16
Items	18
Modify	18
Get	19
Data	21
Variables	21
Values	21
Simple	24

Advanced	25
Properties	25
Functions	27
Simple	27
MERGE Cube	28
Actions	28
Events	28
Simple	29
Notes	30
Samples	30

Transform

Transitions

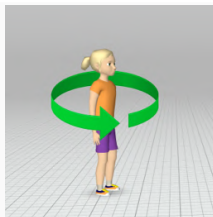
BASIC



Make an object **move a certain distance** in a certain direction over time

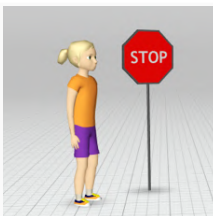
move meters

in sec.



Make an object or a character **turn** over time

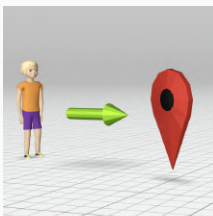
turn by by sec.



Stop an object or a character

stop transition of

PRO

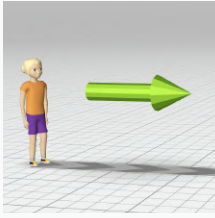


Make an object **move to a certain point** over time

move

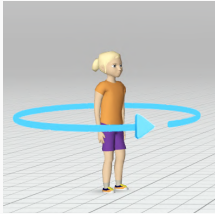
to x: y: z:

in sec.



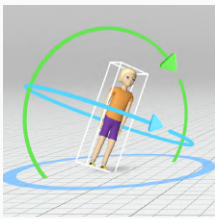
Make an object **move on a path** over time

move my item ▾ on path my path ▾
in 5 sec.



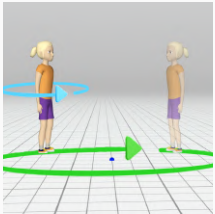
Make an object **turn of a certain angle** over time

turn my item ▾ clockwise ▾ by 180°
with radius 1 meters in 1 sec.



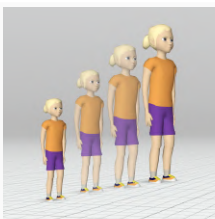
Make an object **turn around an axis** over time

turn my item ▾ clockwise ▾
around axis x: 0 y: 1 z: 0
in 90° in 1 sec.



Make an object **turn relative to a point** in a certain direction

turn my item ▾ clockwise ▾
origin x: 0 y: 0 z: 0 local ▾
direction x: 0 y: 0 z: 1 local ▾
angle 90° in 1 sec.

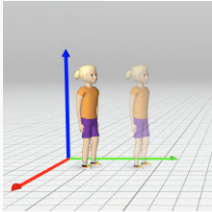


Change the **size** of an object over time

scale my item ▾ by 2 in 1 sec.

Position

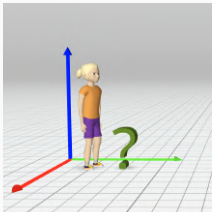
PRO



Change the **position**
of an object

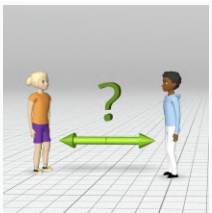
set position of my item ▾

to x: 0 y: 0 z: 0



Get the **position**
of an object

position of my item ▾

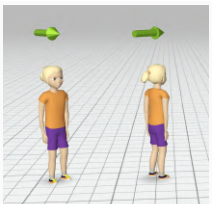


Get the **distance**
between 2 objects

distance between item 1 ▾ and item 2 ▾

Rotation

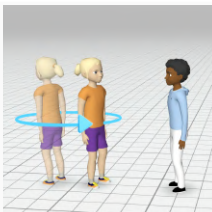
PRO



Change the **direction**
of an object

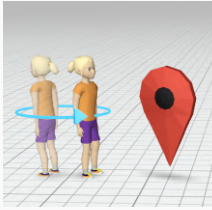
set direction of my item ▾

to x: 0 y: 0 z: 0



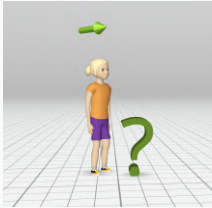
Make an object **turn**
towards another object

turn my item ▾ to look at my item ▾



Make an object
**turn towards certain
position**

turn to look at x: y: z:

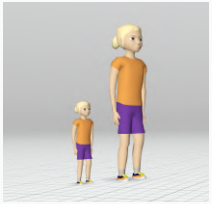


Get the direction
of an object

direction of

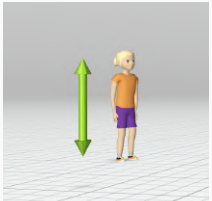
Scale

PRO



Set the size of an object

set scale of to



Get the size of an object

scale of

Actions

Generic

BASIC



Make a character **say** or **think** something

my item ▾ say " Hi! "

my item ▾ think " Hm... "



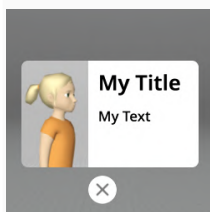
Change the **color** of an item

set color of my item ▾ to



Change the **opacity** of an item

set opacity of my item ▾ to 100 %

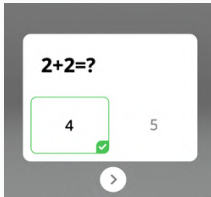


Show an **info panel** with a title, text (and an image)

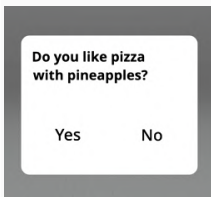
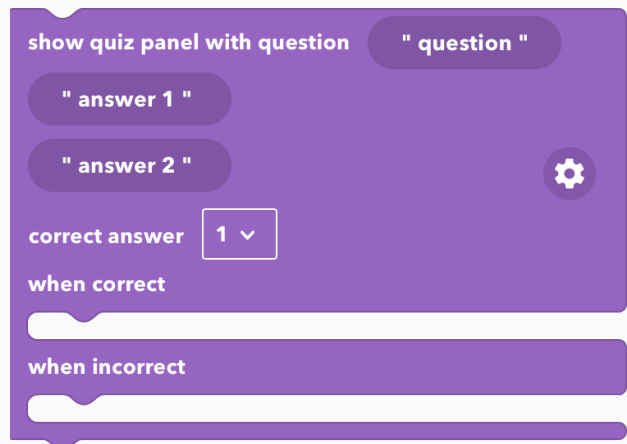
show info panel with title " Title "

text " Text "

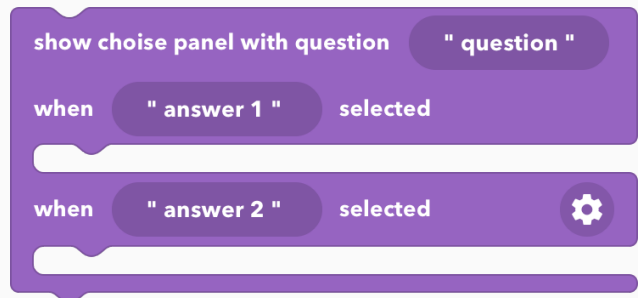
image no images ▾



Show a **quiz panel** with a question and answers that can be clicked and will trigger an action when the selected answer is correct or incorrect.



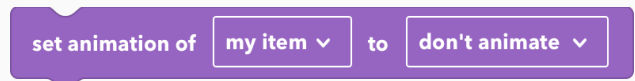
Show a **choice panel** with a question and options that can be clicked and that trigger different actions.



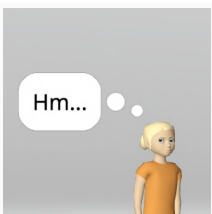
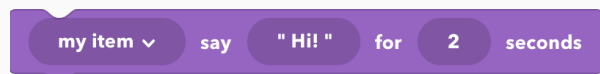
PRO



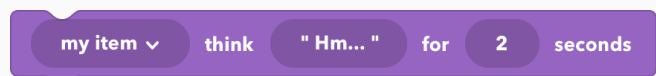
Play the **animation** of an object



Make an object **say** something for a certain duration



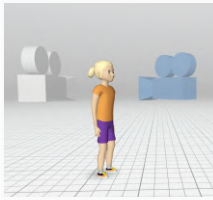
Make an object **think** something for a certain duration





Define the **text** of a text object

set text of my text item ▾ to " "

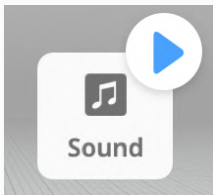


Switch to a different **camera** in your scene

switch to camera my camera item ▾

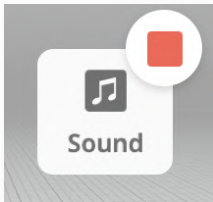
Sound

BASIC



Play a **sound** file

play sound my sound ▾
wait until finished false ▾

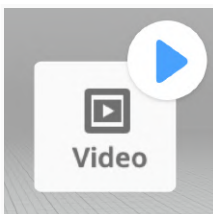


Stop playing the **sound** file

stop sound my sound ▾

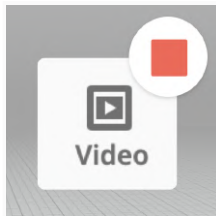
Video

PRO



Start playing a video and choose to wait for the video to end or not before next actions

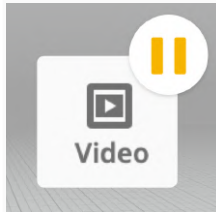
play video my video item ▾
wait until finished false ▾



Stop playing a certain video

stop video

my video item ▾



Pause a certain video

pause video

my video item ▾

Events

Input

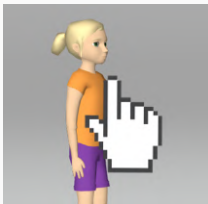
BASIC



Make something happen
when an item is **clicked**

when is clicked

PRO

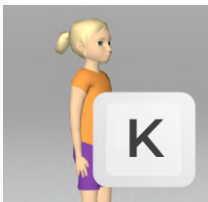


Define what happens when
a certain **object** is **hovered**
and **not hovered**

when is hovered

on:

off:

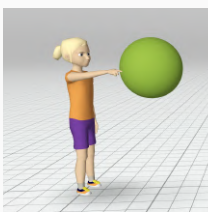


Define what happens when
a certain **key** is **pressed**

when key is

Collision

PRO

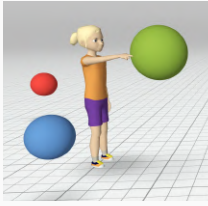


Define what happens when
a certain **object collides**
with another object and no
longer collides with it

when collides with

enter:

exit:



Define what happens when a certain **object collides with any other object** and no longer collides with it

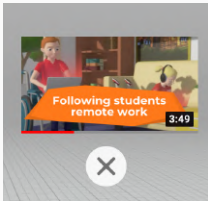
when **my item** ▾ collides with **anotherItem**

enter: _____

exit: _____

Web

PRO



Show a YouTube video when the object is **clicked**.

Not supported in VR mode

when **myItem** ▾ is clicked

show YouTube video " URL "



Open a website when the object is **clicked**

Not supported in VR mode

when **myItem** ▾ is clicked

open link " URL "

Other

PRO



Removes existing **events** on an object (e.g. when this object is clicked or hovered)

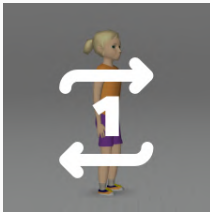
remove **when item clicked** ▾ event from **my item** ▾



Control

Loops

BASIC



Make one or more actions **repeat** a certain amount of times



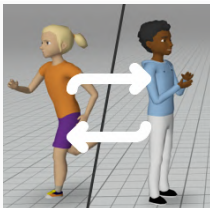
PRO



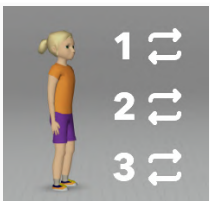
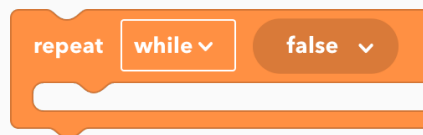
Make an action happen **forever** as a **loop**



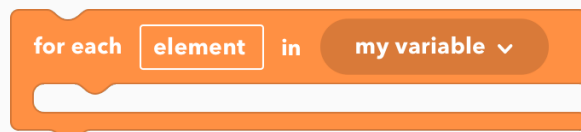
Make an action **repeat** as a loop for a **certain amount** of times. Use every repetition step as a **variable**.

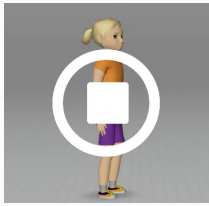


Make an action **repeat** as a loop **while** a condition is **true**



Make an action **repeat for each entry** in a list





Stop a loop from **repeating**

break out of loop

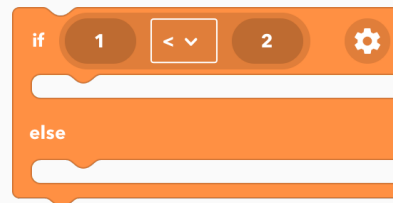
If

PRO

Make an action **happen only if** a certain condition is true



Make an action **happen only if** a certain condition is true. **Else**, make **another action** happen



Other

BASIC



Make my program **wait** for some time

wait for 1 sec.



Start the scene again from the beginning

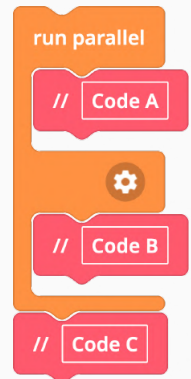
restart scene

PRO

Perform multiple actions together at the same time



Example: Code A and B will start at the same time. When they both finish, code C will start.



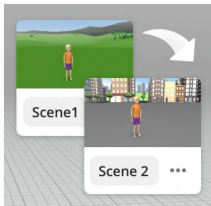
Start several action sequences separately and at the same time



Example: Code A and B will start at the same time separately from each other.

This CoBlock structure makes sense when code B consists of several CoBlocks.

This is similar to the “run parallel” example above if code C was empty.



Switch to a different **scene**

go to scene my scene ▾



Quit the CoSpace and optionally show an image

end CoSpace my image ▾



Hide or show arrows to **switch scenes**

set scene navigation false ▾



Operators

Logic

PRO

Enter an **arithmetic condition**

1 = 10

Enter a **logical condition**

false and false

Check if something **isn't true**

not false

Check if something is **true** and **return a certain value if it is or isn't**

test false
if true 1
if false 2

Math

PRO

Enter an **arithmetic condition**

1 + 1

Get a **random integer number** within a certain range

random integer from 0 to 100

Get a **random number** within a certain range

random number from 0 to 1

Limit a number **within a certain range of numbers**

constrain 1 from 1 to 100

Check if a certain number is **even or odd**.
Returns true for even, false for odd.

0 is even ▾

Check if a certain number is **divisible by another number**. Returns true if it is.

0 divisible by 3

Get the **remainder of a division**

remainder of the division 0 by 2

Get the **rounded value** of a certain number

round ▾ 0

Gets the **rounded to n decimals value** of a certain number

round 0 to 2 decimals

Get the **square root** of a certain number

square root ▾ 0

Get the result of a **trigonometric operation**

sin ▾ 0

Get the **sum** of a list of variables

sum ▾ of list my variable ▾

Items

Modify

PRO

Add the **child** of an object to another object

add child my item ▼ to my item ▼

Attach an object to another object

attach my item ▼ slot Top ▼ to my item ▼ slot Top ▼

Detach an object from the object it's attached to

detach my item ▼ from parent

Delete an object

delete my item ▼

Delete all children of an object

delete all children of my item ▼

Activate physics on an object

add physics to my item ▼

Disable physics on an object

remove physics from my item ▼

Add an **object** at a certain position and with a certain name

create item Capsule ▼ at x: 0 y: 0 z: 0 with " Item name "

Change the **name** of an object

set name of **my item** ▼ to **" Item name "**

Get

BASIC

Get a certain **item**

item **my item** ▼

Get a certain **group item**

group item **my group** ▼

PRO

Get a certain **camera** object

camera **my camera item** ▼

Get a certain **path** object

path item **my path item** ▼

Get a certain **text** object

text item **my text item** ▼

Get a certain **3D text** object

text 3D item **my text item** ▼

Get a certain **video**

video item **my video item** ▼

Get a certain **object with physics**

physics item **my physics item** ▼

Get an object of a certain **name**

get item " Item name "

Get the name of a certain **object**

name of my item ▾

Duplicate a certain object

create copy of my item ▾

Get the **parent** of a certain object

parent of my item ▾

Get the **number of children** of a certain object

children count of my item ▾

Get a certain **object's child**

child with index 0 of my item ▾

Create an object at a certain position and with a certain name

create item Capsule ▾ at x: 0 y: 0 z: 0 with " Item name "

Check whether a certain **video is playing**

is video item my video item ▾ playing?

Data

Variables

PRO

Create a **variable** with a certain initial value

set variable to

Store a certain **CoSpace variable** under a certain name in order to reuse it in another scene

set CoSpace property to

Get the **stored CoSpace value**

CoSpace property

Increase or **decrease** the value of a **variable**

change by

Use a certain **variable**

Values

PRO

Use **false** or **true**

Use a **certain number**



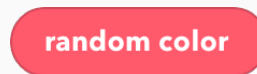
Use a certain **mathematical constant**



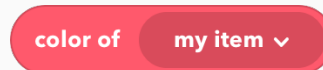
Use **no value**



Use a **random color**



Get the **color** of a certain object



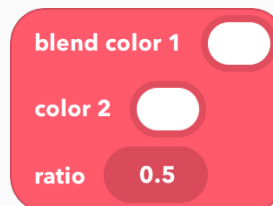
Use a certain **color** you pick



Use a certain **color** you define with its **RGB** values



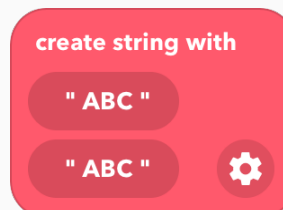
Mix 2 colors together at a certain ratio



Use a text that you define



Create a text string with certain texts that you define



Use certain **coordinates**

x: 0 y: 0 z: 0

Use a certain **coordinate**

x ▾ of x: 0 y: 0 z: 0

Use the **length** of a certain **variable**

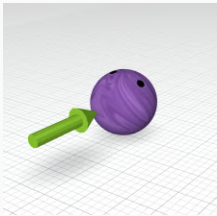
length of my variable ▾



Physics

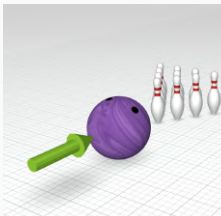
Simple

PRO



Push a certain object **in** a certain **direction** at a certain speed

push my physics item ▾ forward ▾ with velocity 1



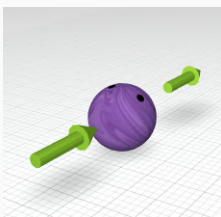
Push an object **towards** another **object** at a certain speed

push my physics item ▾
to my physics item ▾
with velocity 1



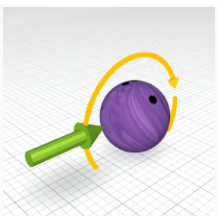
Push an object **towards** a certain **position** at a certain speed

push my physics item ▾
to x: 0 y: 0 z: 0
with velocity 1



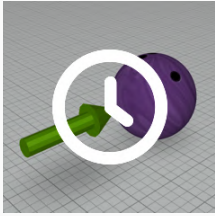
Push an object **in** a certain **direction** at a certain speed

push my physics item ▾
to direction x: 0 y: 0 z: 0
with velocity 1



Make a certain object **spin** in a certain direction at a certain speed

spin my physics item ▾ forward ▾ with velocity 1



Define a **duration** for **physics CoBlocks** to get executed

set physics blocks duration to **0.5** sec

Advanced

PRO

Set the local or global speed for a certain physics object

set velocity of my physics item sec

to x: y: z:

Set the local or global angular speed for a certain physics object

set angular velocity of my physics item sec

to x: y: z:

Properties

PRO

Restrict the **movement** of an object on axes

restrict my physics item to axis X Y Z

Define whether an object is **static** or not

set my physics item

Define whether an object can **collide** with other objects

set my physics item ▾ collisions with other items on ▾

Define the **friction** level of a certain object

set my physics item ▾ friction to 0

Define the **weight** (mass) of a certain object

set my physics item ▾ weight to 1 kg

Define the **bounciness** level of a certain object

set my physics item ▾ bounciness to 0

Define the **gravity** level in your scene

set gravity pull to 0.5

Change the **speed** at which **physics** happen (1 = standard speed)

set physics speed to 1

Functions

Simple

PRO

Stop a **function** from executing further

return from function

Return a certain **value** from a **function**

return 1



MERGE Cube

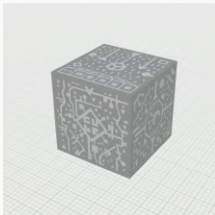
Actions

PRO



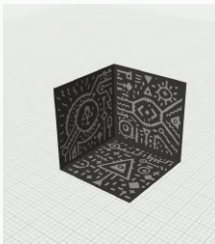
Place a certain object **on** a certain **side** of the MERGE Cube

place my item ▼ of Top ▼ cube side



Change the **opacity** level of the MERGE Cube

set opacity of cube to 100 %

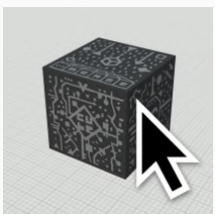


Make the **inside** of the MERGE Cube **visible or invisible**

set cube inside visible true ▼

Events

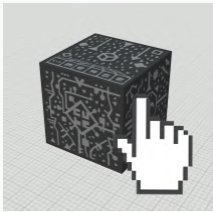
PRO



Make an action **happen when** the MERGE Cube **is clicked** and define whether it should happen only once or more

when cube is clicked

run only once false ▼



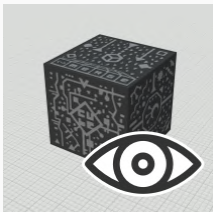
Make an action **happen when** the MERGE Cube **is hovered** and define whether it should happen only once or every time it is hovered

when cube is hovered

on:

off:

run only once false ▾



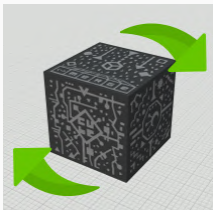
Make an action **happen when** **looking** at a certain **side** of the MERGE Cube and define whether it should happen only once or every time it is looked

when Top ▾ cube side is looked at

on:

off:

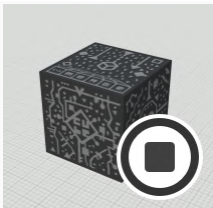
run only once false ▾



Make an action **happen when** the MERGE Cube is **turned** a certain way and define whether it should happen only once or every time the MERGE Cube is turned

when cube turned up ▾

run only once false ▾



Stop a group of MERGE Cube **actions from happening**

remove when cube clicked ▾ events from cube

Simple

PRO

Use a certain **side** of the MERGE Cube

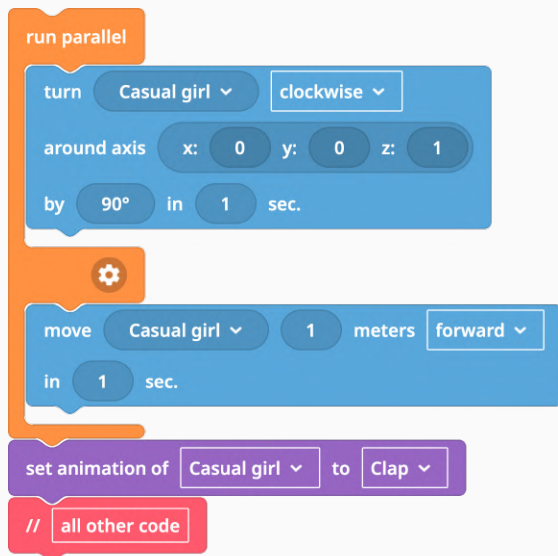
Top ▾ cube side

Use the **visible side** of the MERGE Cube (the one the camera is currently looking at)

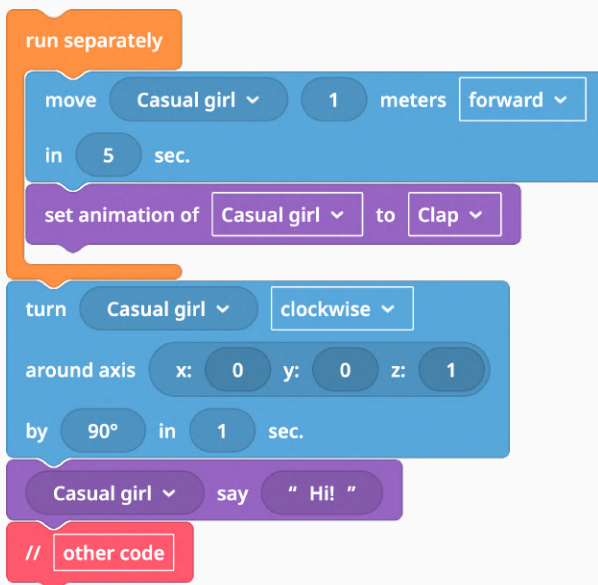
visible cube side

Notes

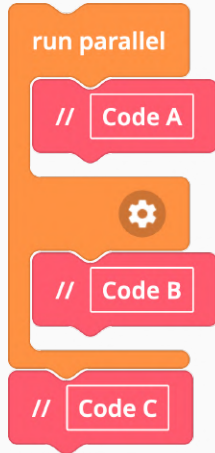
Samples



In this case the girl will turn and move at the same time. And when both moves are done, the girl will play clap animation and the flow will continue.



In this case, the girl will start moving and also turning at the same time. After movement the girl will also clap, but the turn and main flow of the code will start not waiting for movement to be done.



Code A and Code B will start at the same time. When they both finish, Code C will start.



Code A and code B will start at the same time separately from each other. This CoBlock structure makes sense when “Code B” consists of many CoBlocks. It is similar to previous code if the Code C is empty