



CODE YOUR  
FUTURE



TÜRKİYE ULUSAL AJANSI  
TURKISH NATIONAL AGENCY



Co-funded by the  
Erasmus+ Programme  
of the European Union

Training Programme

# Introduction to programming. Creating our virtual world in VR and AR





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# MY VIRTUAL WORLD

DAY1

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# About lectures

## Rimantė

- For 5 years Primary and Secondary School **IT Teacher**
- In 2019 among **TOP 3** of Lithuania's Most Innovative Mathematics and IT Teachers
- 2019-2020 gave lectures for Lithuanian primary teachers on **IT integration in lessons**
- For 4 years Sourcery for Kids **Mentor** (Programming academy for 7-12 age kids)
- For 2 years **Organiser** of the children's camp "Informiko akademija" (Programming summer camp for 7-12 age kids)



## Neringa

- For 8 years **Coordinator** of educational international projects and **Technician** in international projects in PI "eMundus"
- For 4 years **Researcher and Academic Assistant** in Informatics Faculty of Kaunas University of Technology
- For 3 years Sourcery for Kids **Mentor** (Programming academy for 7-12 age kids)
- For 2 years **Organiser** of the children's camp "Informiko akademija" (Programming summer camp for 7-12 age kids)

# COURSE STRUCTURE

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
30 min Theory	Basics of programming. How simply explain what is programming and algorithms for kids?	Virtual and augmented reality. History and VR, AR in our life	Equipment and tools for discovering and presenting 3D in the classroom	What is 3D modelling? 2D vs. 3D	CoSpaces Teachers account opportunities, class management
30 min Demonstration according instructions of Practice part	Introduction to <b>CoSpaces</b>  <b>Project 1: My virtual world</b>  Competencies: navigation in the system, language, programming	<b>Project 2: Tell your story</b>  Competencies: creativity, language, writing, programming  Subject: native language, English, IT	<b>Project3: Can you count?</b>  Competencies: counting, writing, Math, programming  Subject: any subject, useful for flipped class method, English, IT	Introduction to <b>TinkerCAD</b>  <b>Project 4: My geometric hero</b>  Competencies: creativity, counting, modelling, Math, Geometry  Subject: any subject, Math, English, IT	<b>Project 5: The Maze</b>  Competencies: counting, programming  Subject: English, IT
10 min	Assessment ( <b>Kahoot</b> )				
10 min	Break				
60 min Developing the projects Consultations	Participants individually developing the project example according the script/instructions and consultations.				
10 min	Feedback (fill the form)				

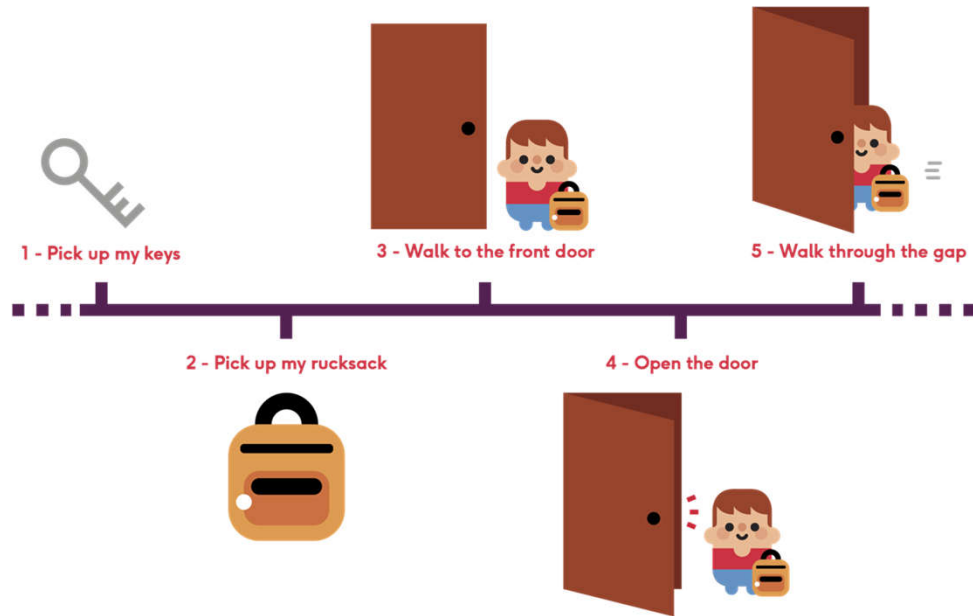
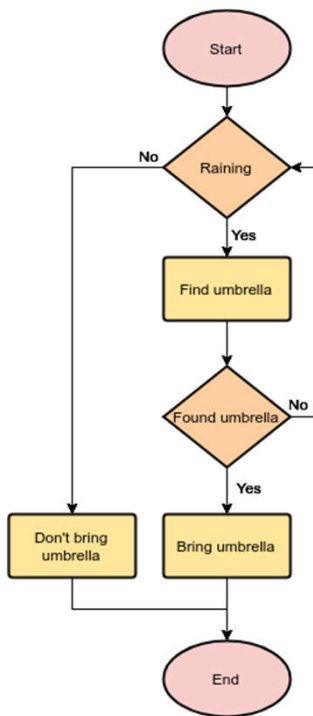


# WHAT IS AN ALGORITHM?



[https://www.youtube.com/watch?v=kM9ASKAni\\_s](https://www.youtube.com/watch?v=kM9ASKAni_s)







# EXAMPLE OF ALGORITHMS



# EXAMPLE OF ALGORITHMS IN REAL LIFE

Making a grilled cheese sandwich

Visual Support

-  Get two slices of bread
-  Put butter on the bread
-  Put a slice of cheese on the bread
-  Cover the sandwich with the other slice of bread
-  Put the bread in a pan and grill it.
-  Eat and enjoy!

*Smarty Symbols*

## HOW TO BRUSH YOUR TEETH



-  1
-  2
-  3
-  4
-  5
-  6  
2 minutes

# PROGRAMING LANGUAGE

---

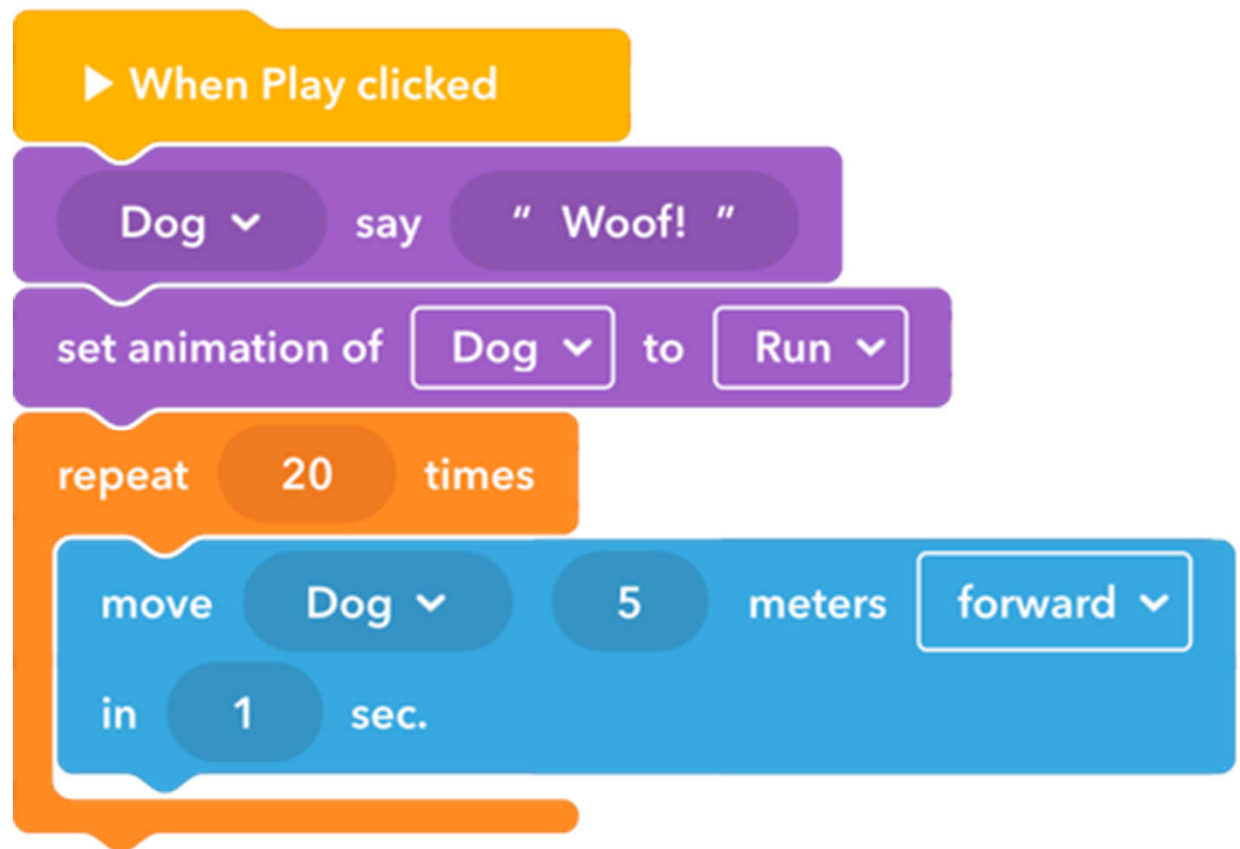


# CODE. WHAT PROGRAMMERS DO

---

```
1 import java.util.*;
2 class matrix{
3     public static void main (String args[]) {
4         Scanner sc = new Scanner (System.in);
5         int num[][]=new int[3][3];
6         for (int i=0;i<num.length;i++) {
7             for (int j=0;j<num.length;j++) {
8                 num[i][j]=sc.nextInt();
9             }
10        }
11
12        for (int i=0;i<num.length;i++) {
13            for (int j=0;j<num.length;j++) {
14                System.out.print |(num[i][j]+" ");
15            }
16            System.out.println();
17        }
18    }
19 }
```

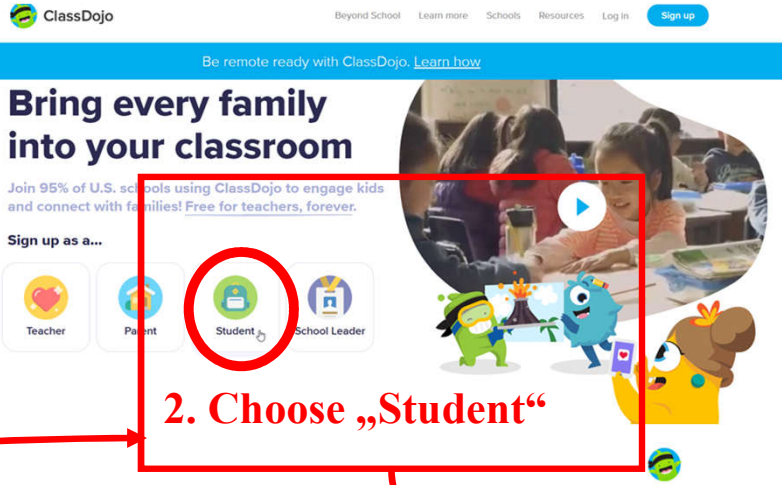
# CODING WITH CHILDREN



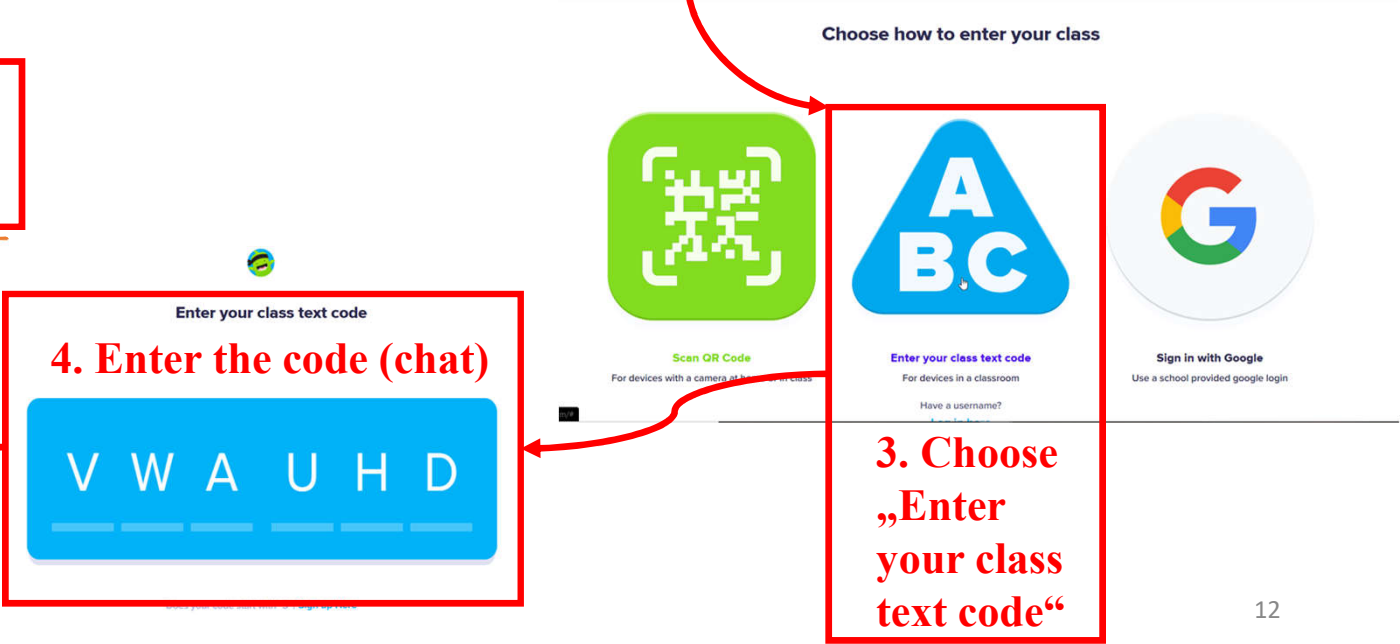


- All week training slides, instructions, videos
- Sharing your projects
- Asking questions and discussions (in English or national language)
- Answering the learners (help each other and discover together)
- Asking lecturers by private message (in English or national language)





1. Enter **CLASSDOJO.com**



4. Enter the code (chat)

V W A U H D

5. Choose your name





## DAY 1. 1st Project "Introduction to the CoSpace".

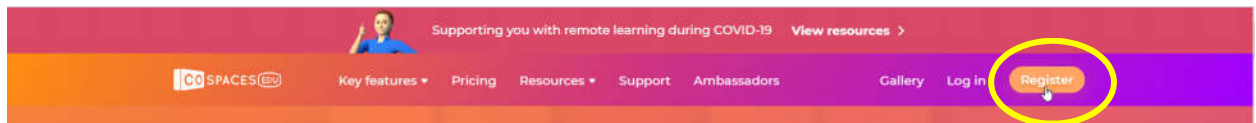
During this session you will perform 2 practical tasks, during which:

- You will create an account of CoSpaces.
- You will get acquainted with the environment with CoSpaces.
- You will learn to move the character, change the background.

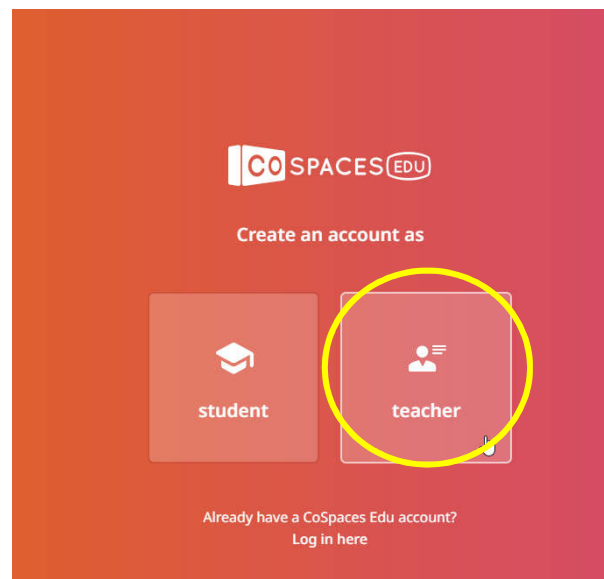
### Task 1. Create an account

**Step 1.** Open the CoSpace page in the browser. Link: <https://cospaces.io/edu/>

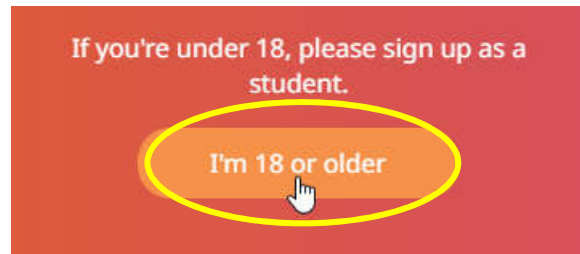
**Step 2.** Click the "Register" button.



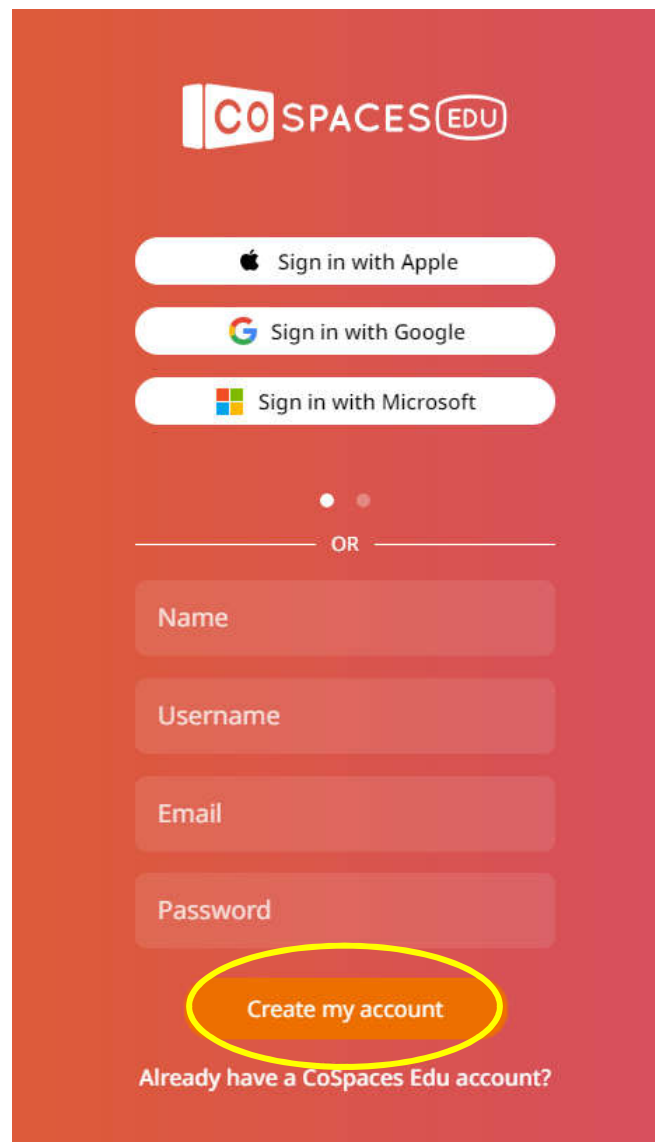
**Step 3.** Select the "Teacher" button.



**Step 4.** Agree that you are over 18 years old.



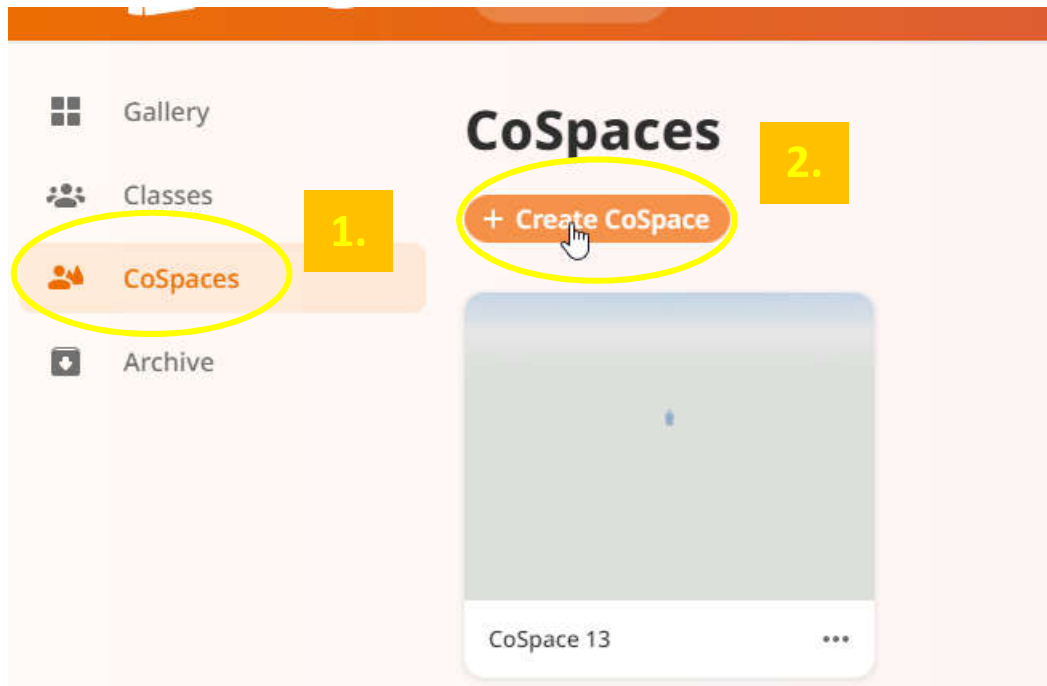
**Step 5.** Create an account. Enter your name, login name, e-mail and the desired password and click the "**Create my account**" button.



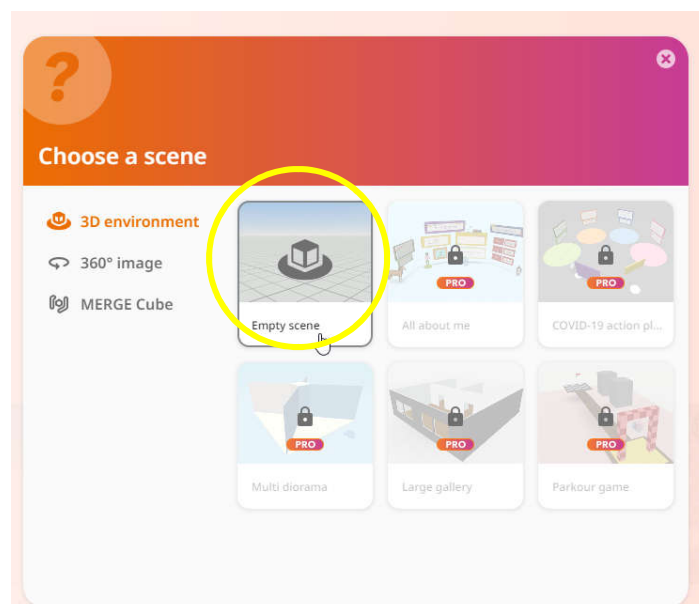
## Task 2. Create the 1st Project "My Virtual World"

*The project must have at least 3 characters with different animations and backgrounds.*

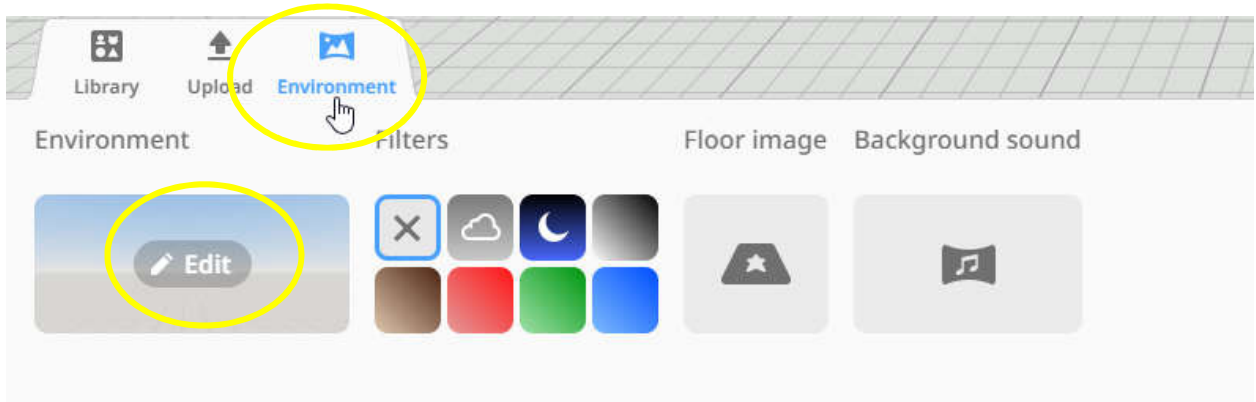
**Step 1.** Select the „CoSpaces“ button on the left and press the „+ Create CoSpace“ button



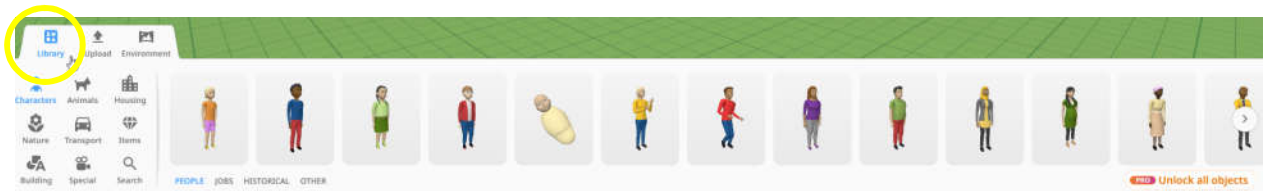
**Step 2.** Press the „Empty scene“ button.



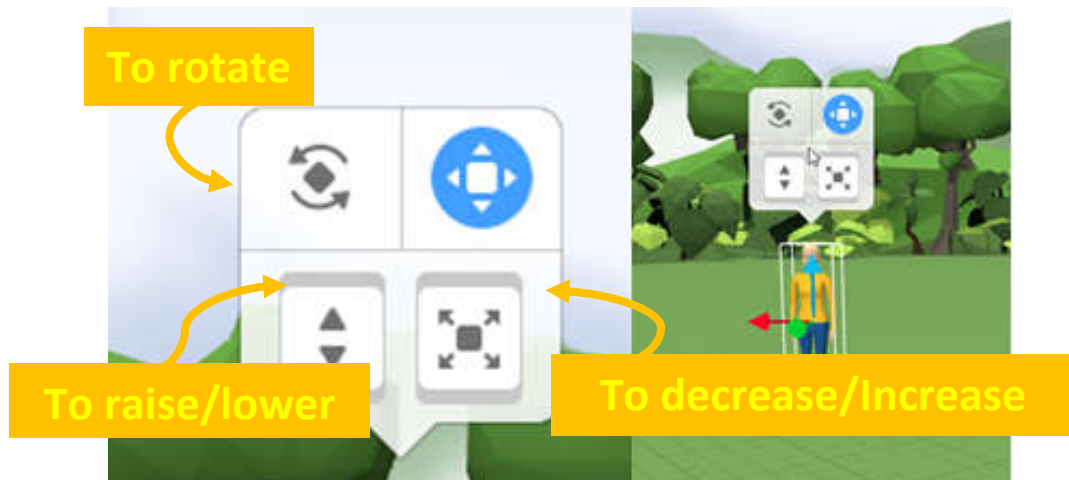
**Step 3.** At the bottom, click the "**Environment**" button, then click the "**Edit**" button and select the background you like.



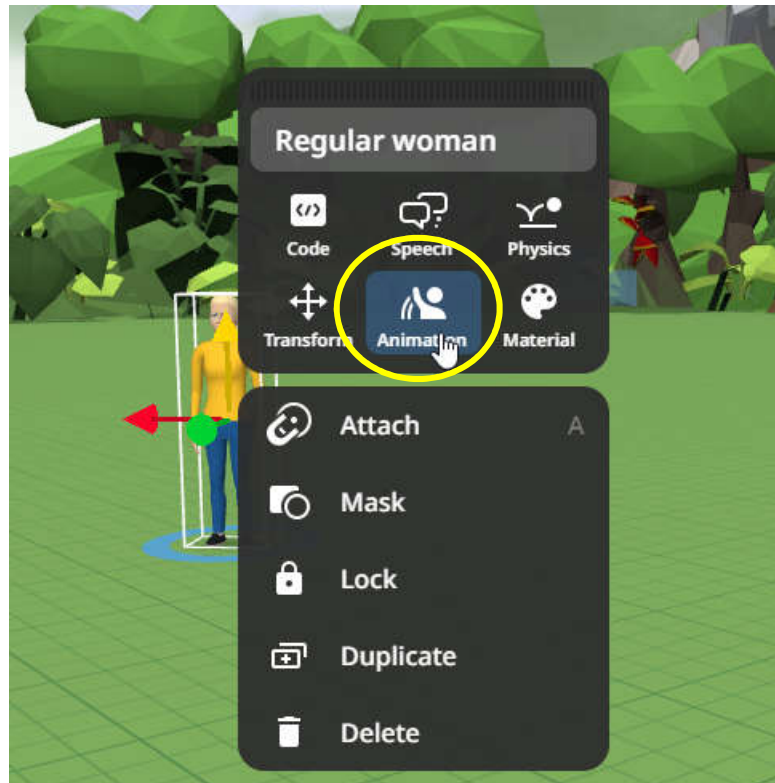
**Step 4.** At the bottom, click on the "Library" button and select the characters you like from the library. Click on them and drag them to the virtual environment that you chose.



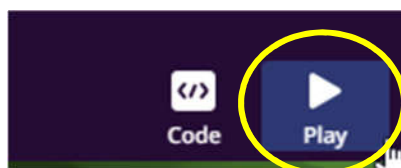
**Step 5.** You can adjust, rotate, raise, decrease or increase the character.



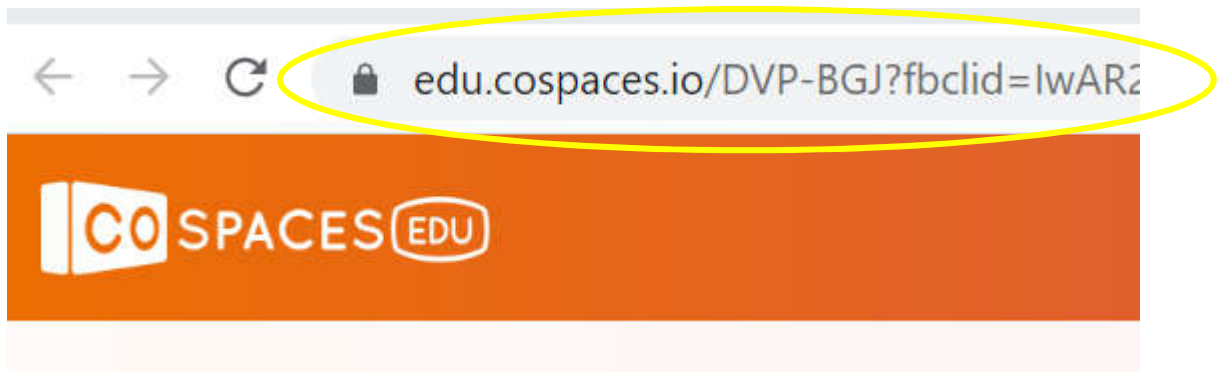
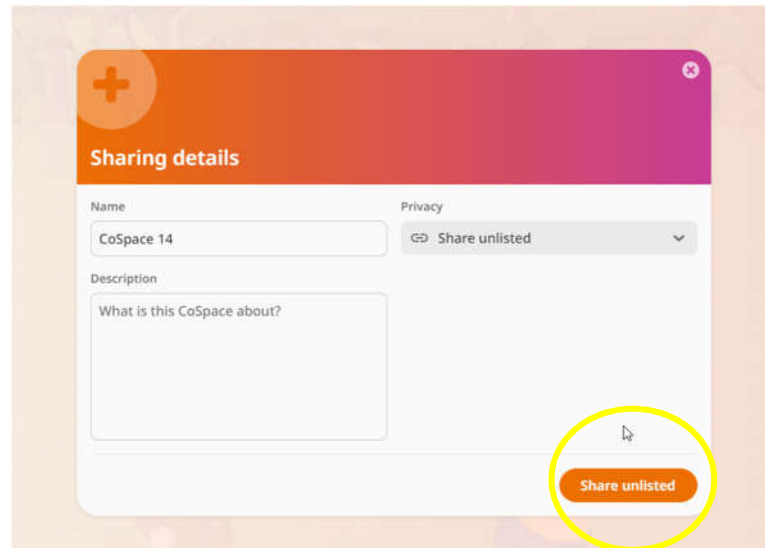
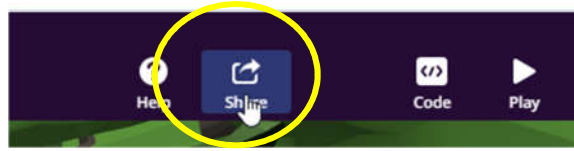
**Step 6.** You provide animation to your uploaded characters. Right-click on the character, select the "**Animation**" button, click on it to select the desired animation.



**Step 7.** Develop your virtual world at your own discretion, try different animation, add more characters and try your project (“Play” button on the top right corner).



**Step 8.** Share a project link. “Share” button at the top right corner. In the table that appears, give the project a Name (“Name”), you can provide a Description (“Description”), and click “Share unlisted”. Then copy the project link (website address) and place it according to the lecturer's instructions.





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# **Introduction to programming. Creating our virtual world in Virtual Reality and Augmented Reality**





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# TELL YOUR STORY

DAY 2





# WHAT WE DID YESTERDAY?

Our first virtual world



# VIRTUAL REALITY

**What are the associations?**

# VIRTUAL REALITY

- **Virtual reality (VR)**, the use of computer modeling and **simulation** that enables a **person to interact with an artificial three-dimensional (3D) visual** or other sensory **environment**.



# VIRTUAL REALITY LESSONS

---

- Math (counting, Geometry, etc.)
- Biology (body structure, animals, etc.)
- Geography (world map, Solar System, etc.)
- Chemistry (virtual lab, etc.)
- Language
- History (architecture, virtual tours in museums )
- STEAM
- Other lessons



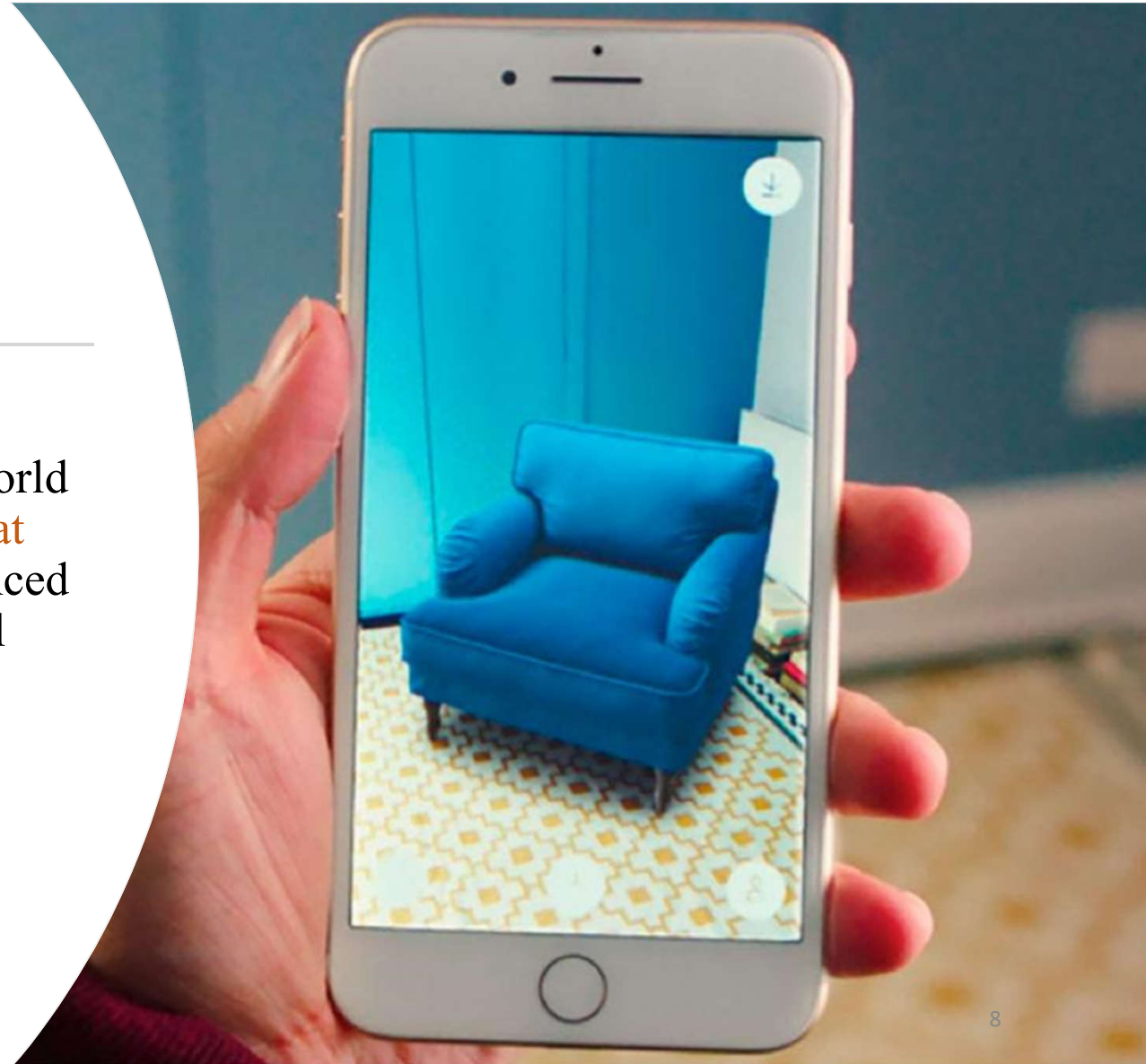
# AUGMENTED REALITY

**What are the associations?**



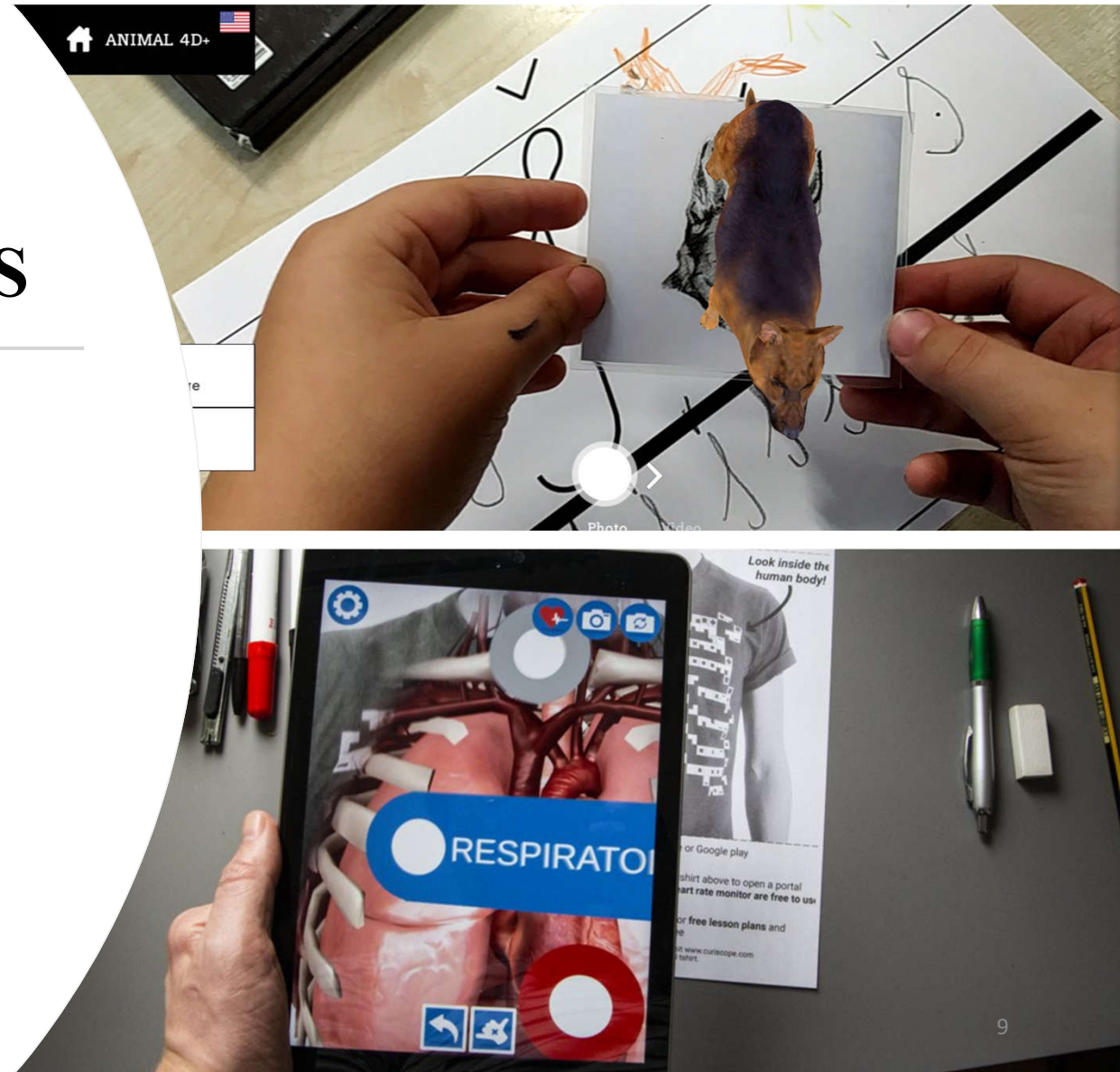
# AUGMENTED REALITY

- **Augmented reality (AR)** is an interactive experience of a real-world environment where the **objects that appear in the real world** are enhanced by computer-generated perceptual information, sometimes across multiple sensory modalities, including visual, auditory, haptic (touching), somatosensory and olfactory (smelling).



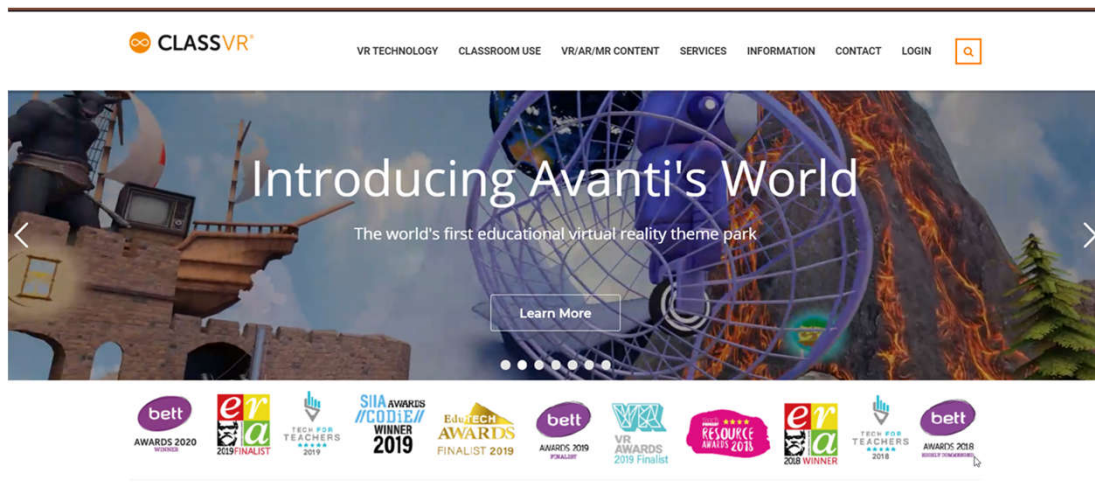
# AUGMENTED REALITY LESSONS

- Math
- Biology
- Geography
- Chemistry
- Language
- History
- STEAM
- Other lessons



# PROGRAM „CLASSVR“

<https://www.classvr.com/>





# PROGRAM „GOOGLE VR“

<https://edu.google.com/products/vr-ar/>

Google

Get products Contact sales

For Education Why Google Products Teaching Resources Code with Google Training & Support The Latest

Sign in

Expeditions and Tour Creator are shutting down on June 30th, 2021. Please see the [Help Center](#) for support on how to save your tours.

Home > Virtual & Augmented Reality

Bringing virtual and augmented  
reality to the classroom



# PROGRAM „ANIMAL 4D+“

Android app

iOs app



Animal 4D+

Octagon Studio Education

Everyone

This app is available for your device

Add to Wishlist



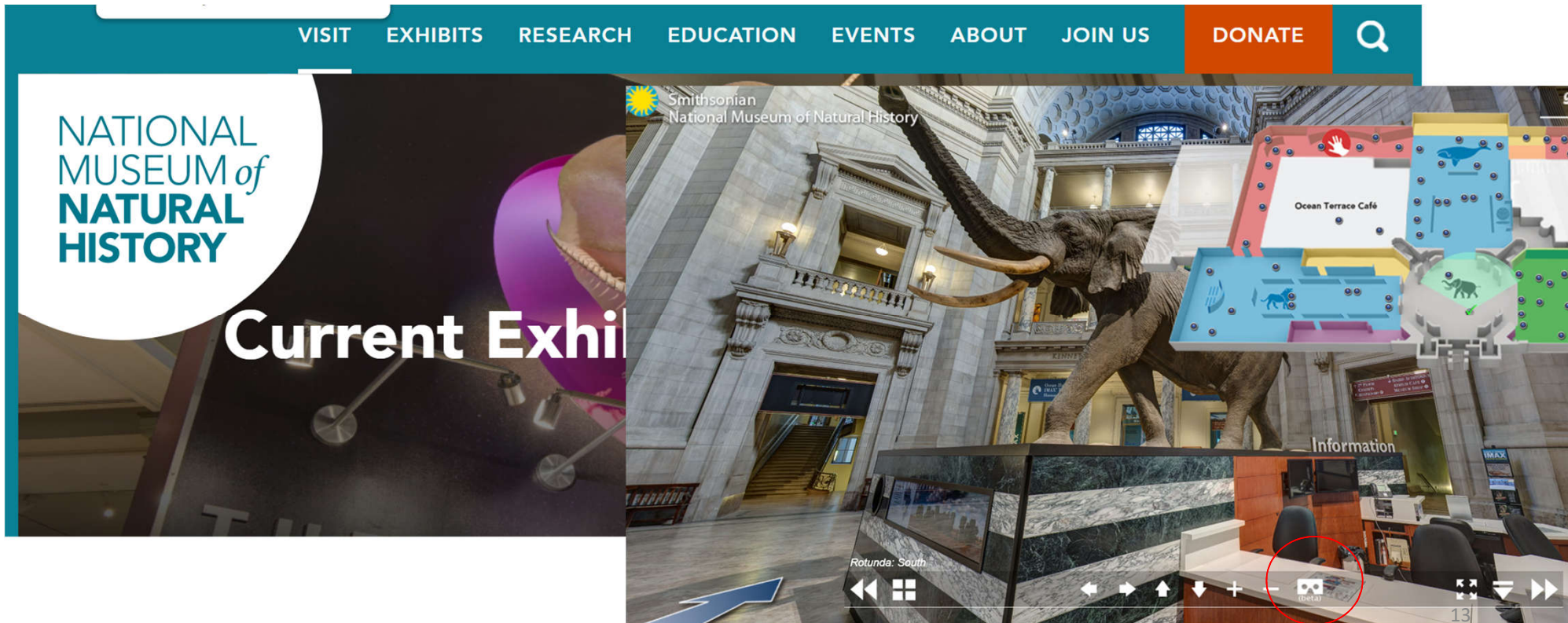
Flashcards Powered with Augmented Reality



- Multi languages: English, Spanish, Turkish, Japanese, Bahasa, Dutch, Mandarin, Korean, French, Ukrainian, Russian

# Museums

<https://naturalhistory.si.edu/visit/virtual-tour/current-exhibits>



# PROGRAM „CoSpaces“

<https://cospaces.io/edu/>

Supporting you with remote learning during COVID-19 [View resources >](#)

**CO SPACES** EDU [Key features](#) [Pricing](#) [Resources](#) [Support](#) [Ambassadors](#) [Gallery](#) [Log in](#) [Register](#)

## Make AR & VR in the classroom

Rocket is clicked

Learning = CoSpaces

release AWESOMENESS

move Rocket v Up v

in 1 sec.

set color to

14

## DAY 2. 2nd Project „Tell Your Story“

During this session you will complete 1 practical task, during which:

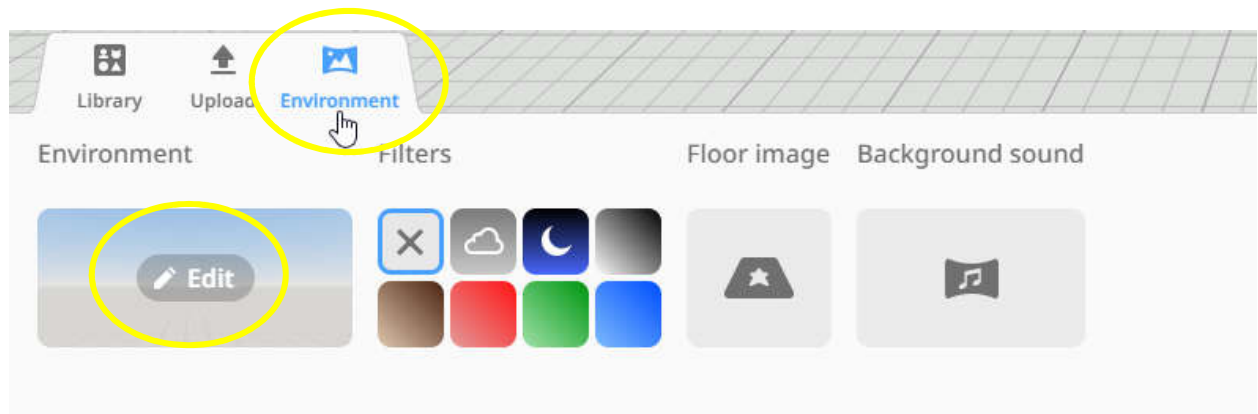
- You will remember the steps learned during our first meeting: how to create a project, upload actors, etc.
- You will get acquainted with the concept of algorithm.
- You will learn to program a dialogue between two actors.

### Task 1. Dialog of two actors

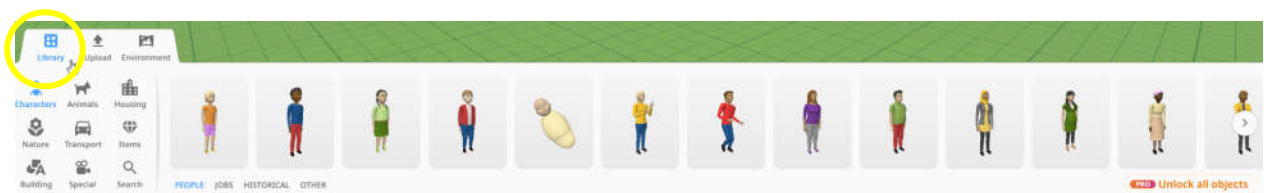
*Create a dialogue between two characters, with at least 5 sentences for each character.*

**Step 1.** Sign with CoSpace account and create a project.

**Step 2.** At the bottom, click the "Environment" button, then click the "Edit" button and select the background you like.

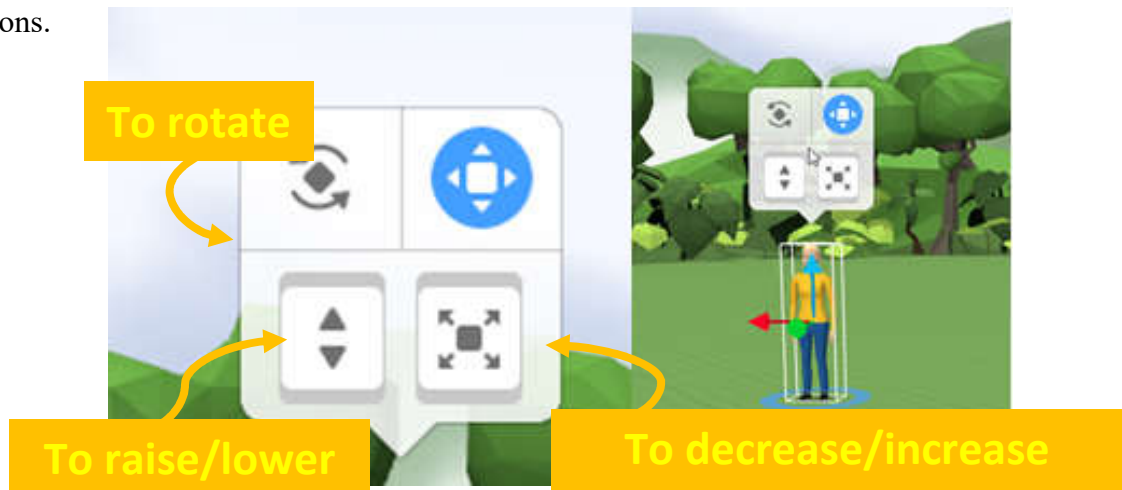


**Step 3.** At the bottom, click on the "Library" button and select 2 characters you like from the library. Click on them and drag to the window at the top, into your virtual environment.

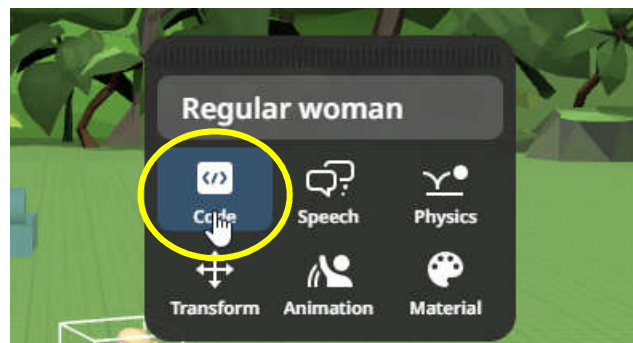




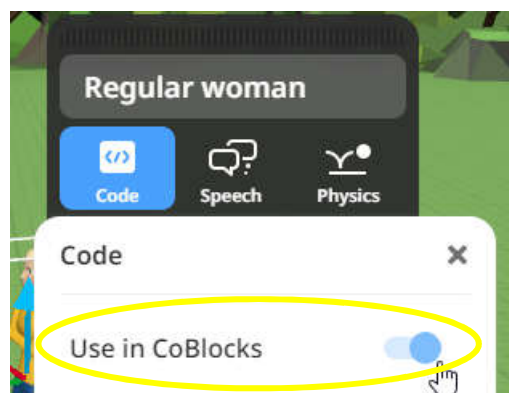
**Step 4.** You can adjust your character: rotate, raise/lower, decrease or increase. Try these functions.



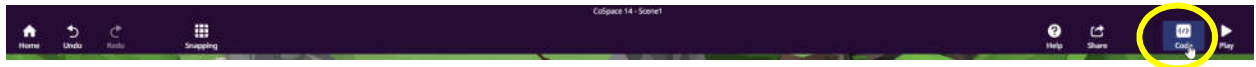
**Step 5.** Enable programming features for your uploaded characters. Right-click on the character, select the "Code" button.



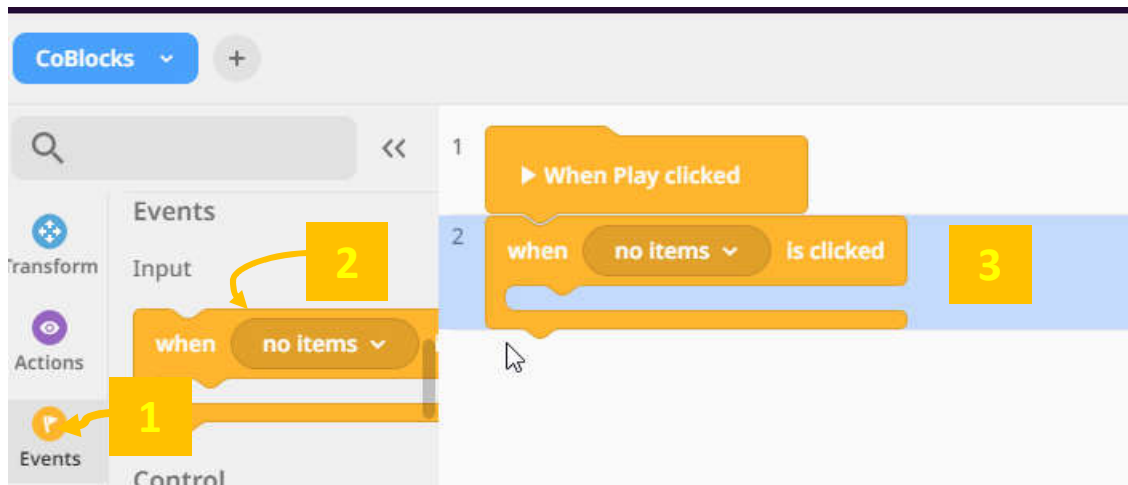
**Step 6.** After selecting the "Code" button, click on "Use in CoBlocks".



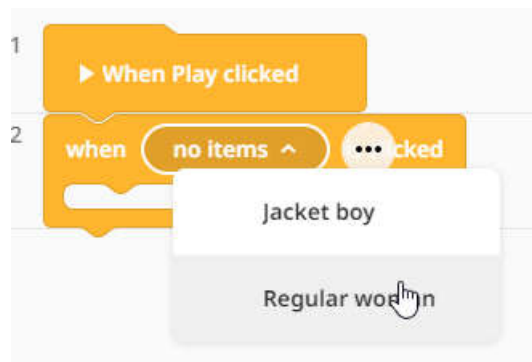
**Step 7.** Click the „Code“ button in the top right corner of the window.



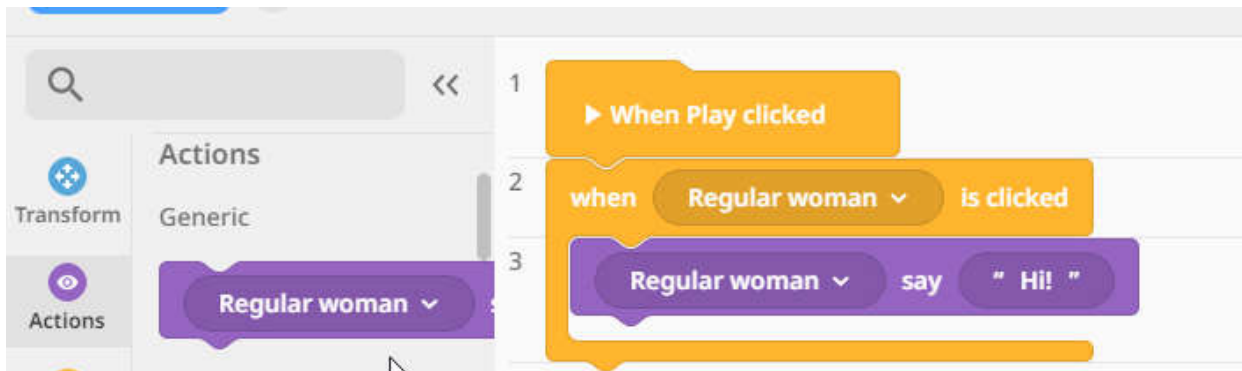
**Step 8.** Select the "Events" section and find the "When (no items) is clicked" block, which we place next to the "When play clicked" block.



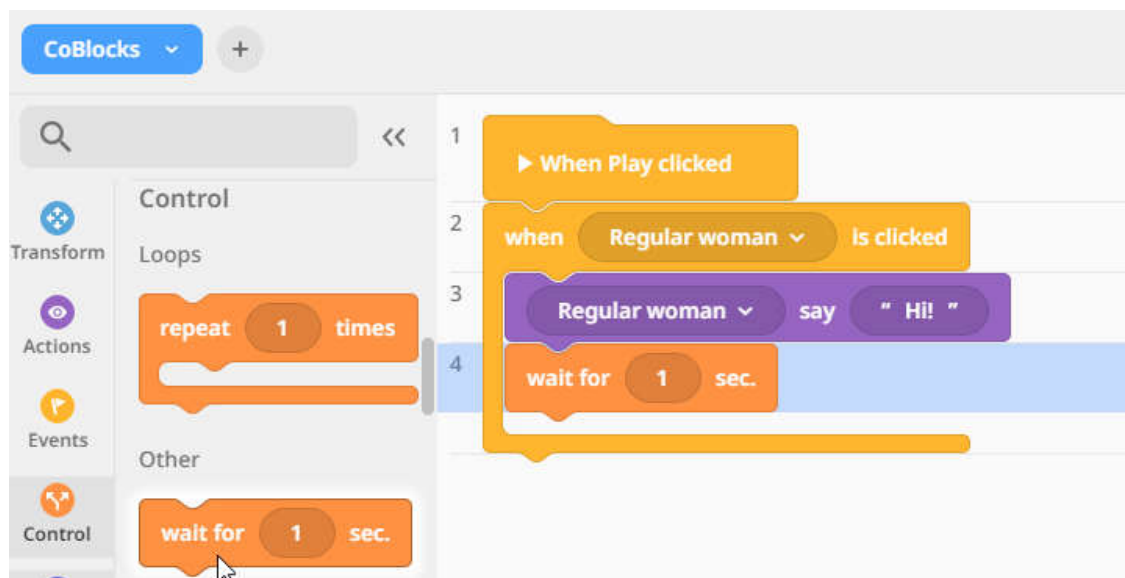
**Step 9.** Select the character in the "When (no items) is clicked" block.



**Step 10.** Select the "Actions" section and insert the "Say (Hi!)" block. Instead of the "hi" text write your desired text - the first sentence of the dialog, greeting, etc.

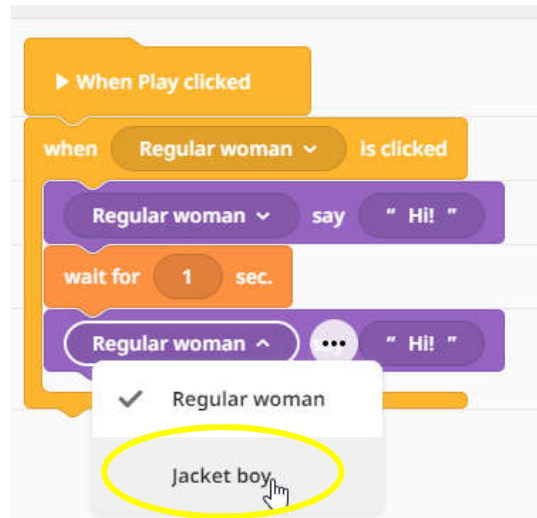


**Step 11.** Select the "Control" section and insert the "Wait for (1) sec." Block. Set the number of seconds as long as our character speaks.





**Step 12.** Take the „Say“ block again, just select another character and write for this character a text, which he/she will say.



**Step 13.** Complete the dialogue between the two actors using the „Say“ and „Wait“ blocks, try your project („Play“ button) and share the project link.



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# CAN YOU COUNT?

DAY 3

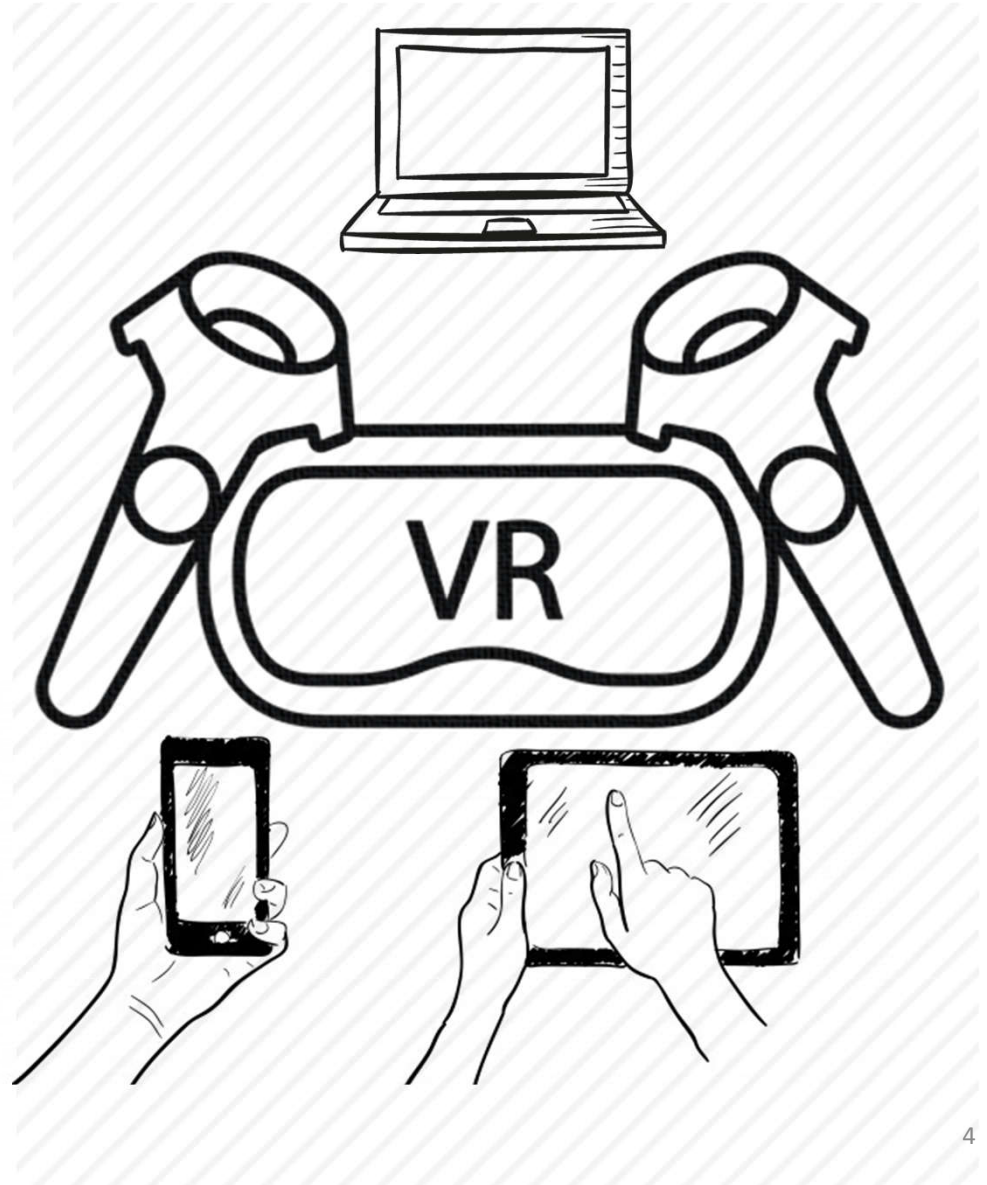


# WHAT WE DID YESTERDAY?

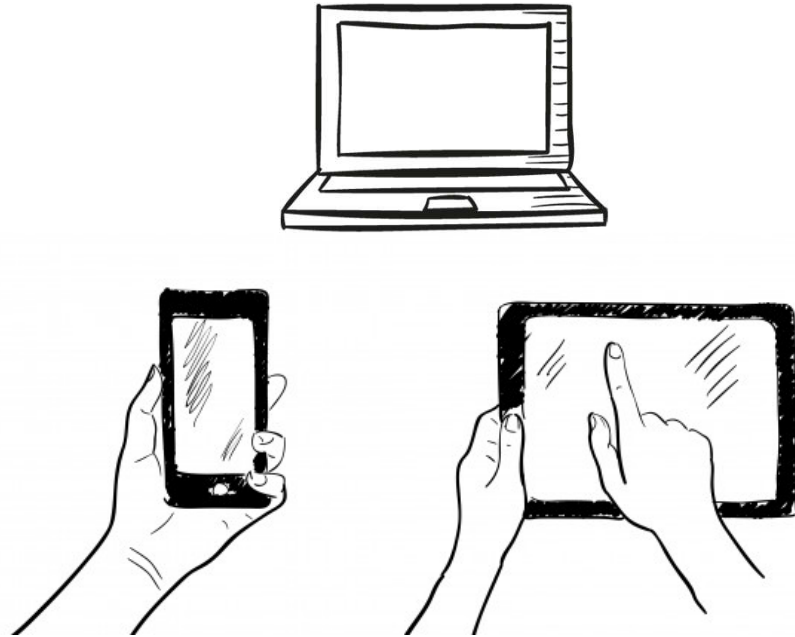
Our first virtual world



# VR vs. AR Equipment and Easiness



# VR vs. AR Equipment and Easiness





# VR Programs for education



## Earth VR

Dokon Jang Entertainment

★★★★★ 32

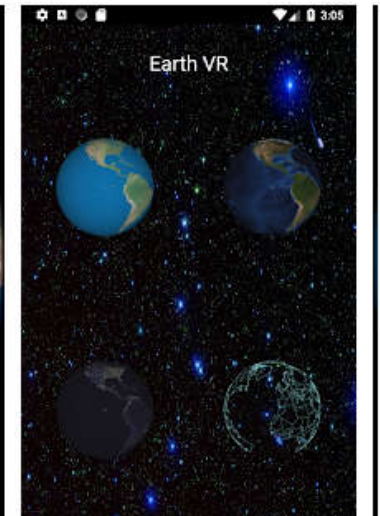
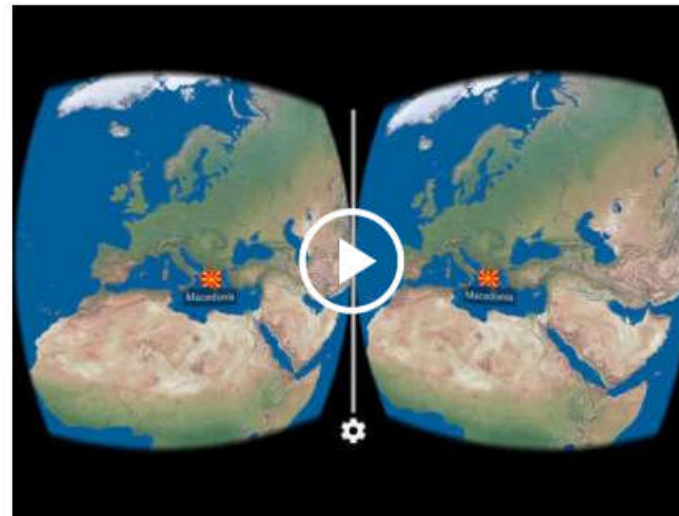
PEGI 3

Contains Ads

This app is available for all of your devices

Add to Wishlist

Install



<https://play.google.com/store/apps/details?id=com.jmsys.earthvr>  
<https://www.youtube.com/watch?v=XyjUPIQQxqU&t=22s>

# VR Programs for education



## Earth 3D

Dokon Jang Entertainment

★★★★★ 54,102

PEGI 3

Contains Ads

This app is available for all of your devices

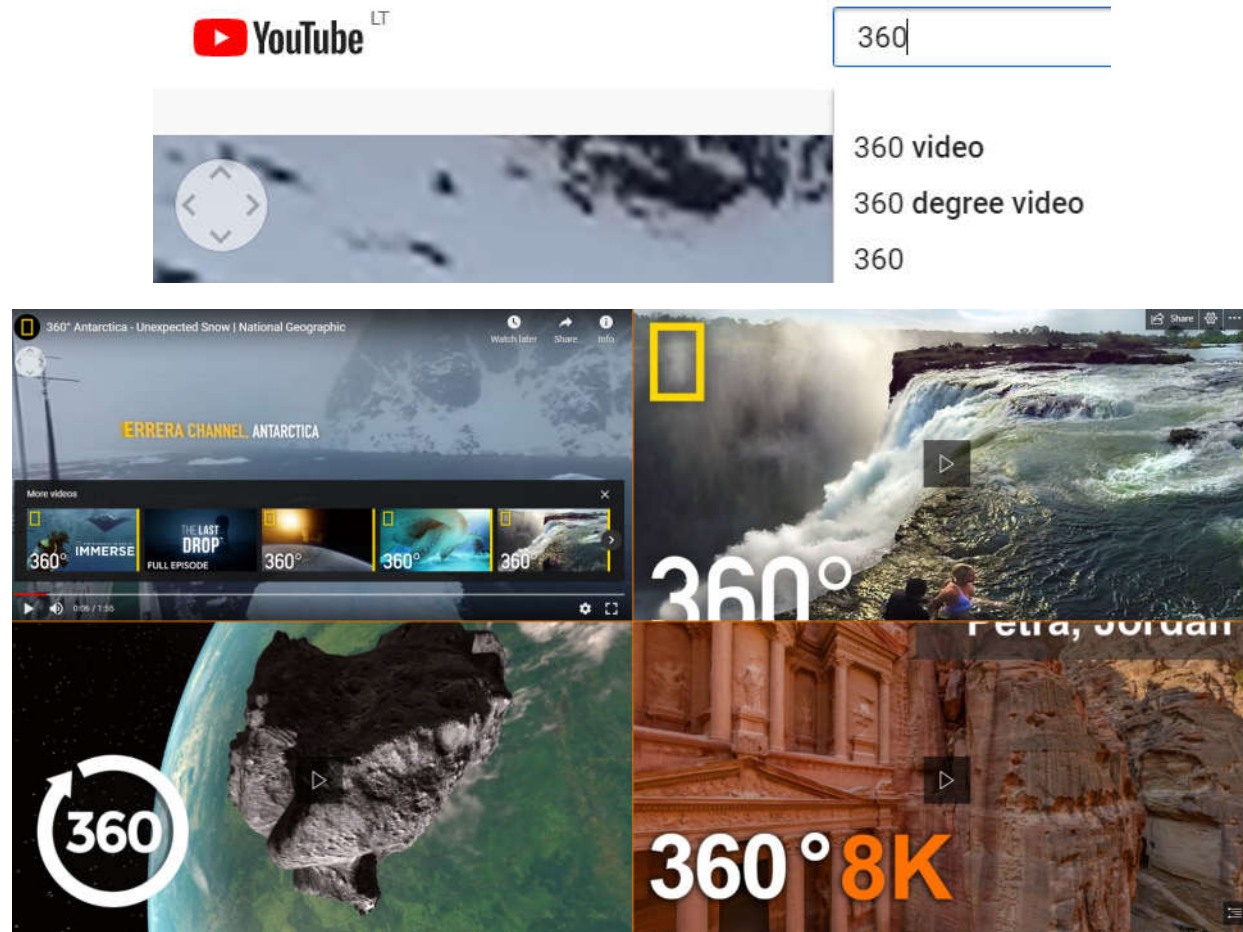
Add to Wishlist

Install



<https://play.google.com/store/apps/details?id=com.jmsys.earth3d>  
<https://www.youtube.com/watch?v=lzEWT-yJ8Q8&t=7s>

# VR Programs for education



<https://www.youtube.com/watch?v=XPhmpfiWEEw>

# Conditionals

---

A statements that only run under **certain conditions**.



**IF** it is raining outside,  
**THEN** bring an umbrella!

**IF** it is sunny outside,  
**THEN** bring sunglasses!

# Conditionals

---

A statements that only run under certain conditions.



**IF** the light is red,  
**THEN** stop!

**IF** the light is green,  
**THEN** go!

EXAMPLE  
of code in  
PYTHON  
programming  
language

[program.py >](#)

---

```
1 answer = input('Is it raining? ')
2 if answer == 'yes':
3     print('Take an umbrella!')
4 else:
5     print('Put on a hat!')
```

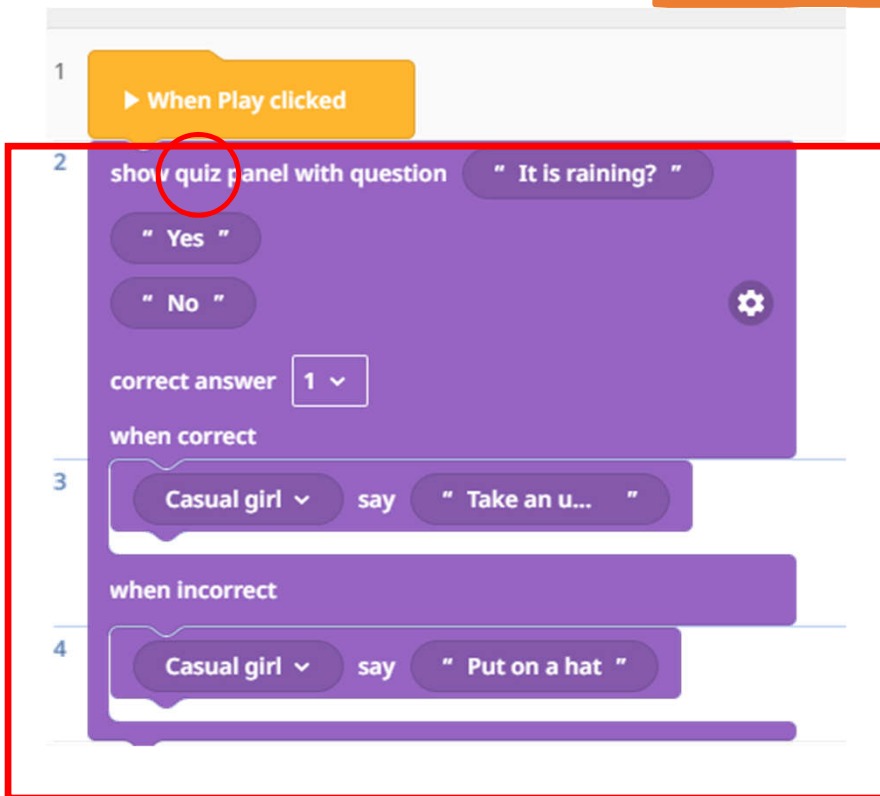


# Example in CoSpaces

The image displays a Scratch script for a quiz in CoSpaces, organized into four distinct blocks:

- Block 1 (Orange):** A "When Play clicked" event block.
- Block 2 (Orange):** A "when John is clicked" block, where "John" is a dropdown menu.
- Block 3 (Purple):** A "show quiz panel with question" block. It includes two answer options: "answer 1" and "answer 2". A "correct answer" dropdown is set to "1". Below this are "when correct" and "when incorrect" blocks, which are currently empty.
- Block 4 (Purple):** A "show choice panel with question" block. It contains two "when" blocks: "when 'answer 1' selected" and "when 'answer 2' selected", each with a settings gear icon.

# Example in CoSpaces



1 ▶ When Play clicked

2 show quiz panel with question " It is raining? "

" Yes "

" No "

correct answer 1 ▾

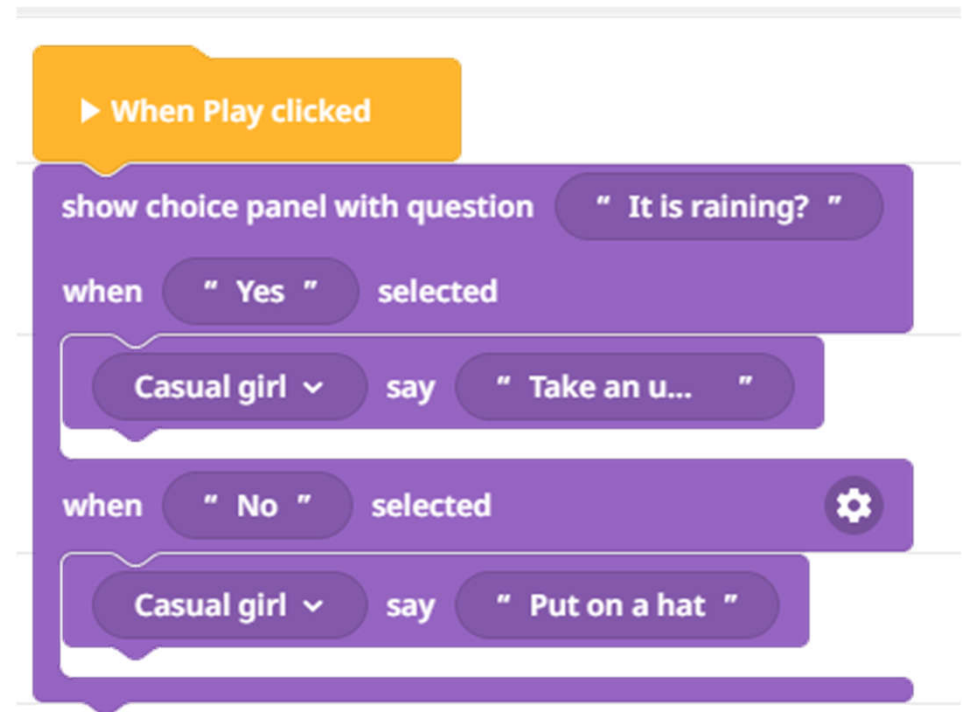
when correct

3 Casual girl ▾ say " Take an u... "

when incorrect

4 Casual girl ▾ say " Put on a hat "

Detailed description: This is a Scratch script for a quiz. It starts with a 'When Play clicked' event block. The main script block is 'show quiz panel with question' with the question 'It is raining?'. Below this are two choice buttons: 'Yes' and 'No'. A 'correct answer' dropdown menu is set to '1'. There are two conditional execution blocks: 'when correct' and 'when incorrect'. The 'when correct' block contains a 'say' block for 'Casual girl' with the message 'Take an u...'. The 'when incorrect' block contains a 'say' block for 'Casual girl' with the message 'Put on a hat'. A red box highlights the entire script from block 2 to 4.



▶ When Play clicked

show choice panel with question " It is raining? "

when " Yes " selected

Casual girl ▾ say " Take an u... "

when " No " selected

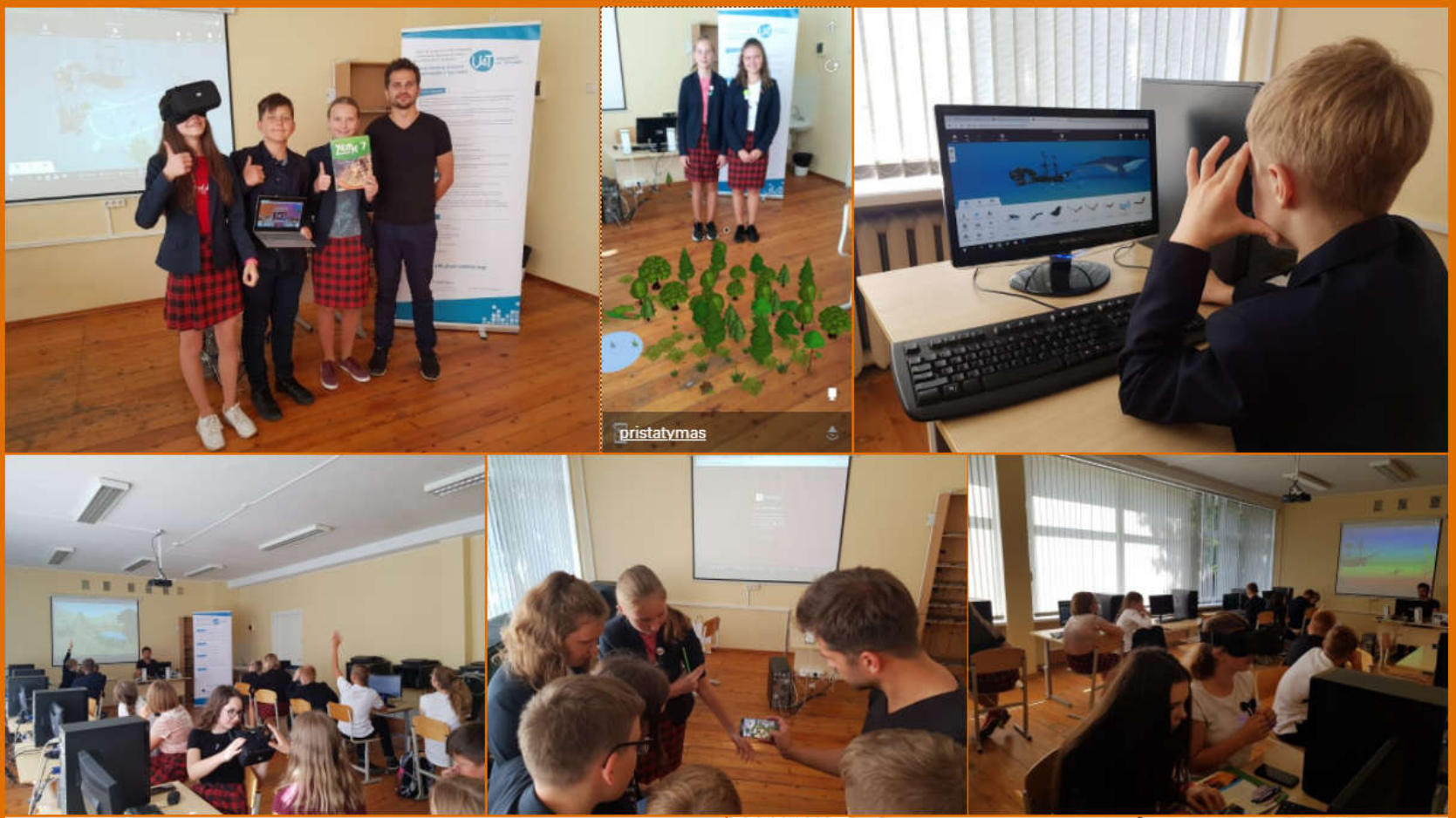
Casual girl ▾ say " Put on a hat "

Detailed description: This is a Scratch script for a choice panel. It starts with a 'When Play clicked' event block. The main script block is 'show choice panel with question' with the question 'It is raining?'. Below this are two conditional execution blocks: 'when " Yes " selected' and 'when " No " selected'. The 'when " Yes " selected' block contains a 'say' block for 'Casual girl' with the message 'Take an u...'. The 'when " No " selected' block contains a 'say' block for 'Casual girl' with the message 'Put on a hat'.




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<http://v4t.pixel-online.org/>

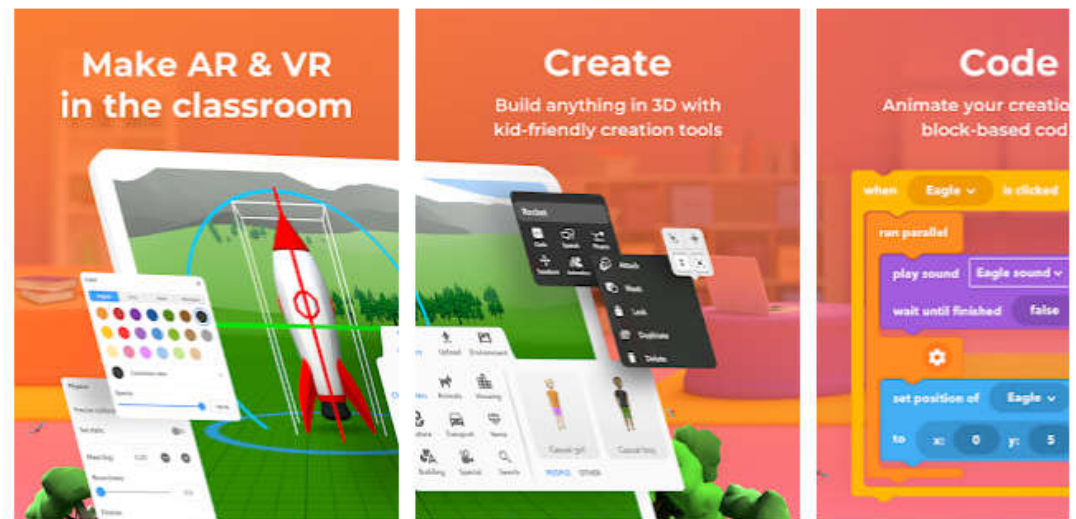


# CoCspaces App

---



**CoSpaces Edu**  
Delightex GmbH Education  
Everyone  
★★★★☆ 750  
Add to Wishlist  
Install



<https://play.google.com/store/apps/details?id=delightex.cospaces.edu&hl=en&gl=US>

## DAY 3. 3rd Project „Can you count?“

During this session you will complete 1 practical task, during which:

- You will remember our first and second training content.
- You will get acquainted with the concept of conditions.
- You will learn to program a quizz.

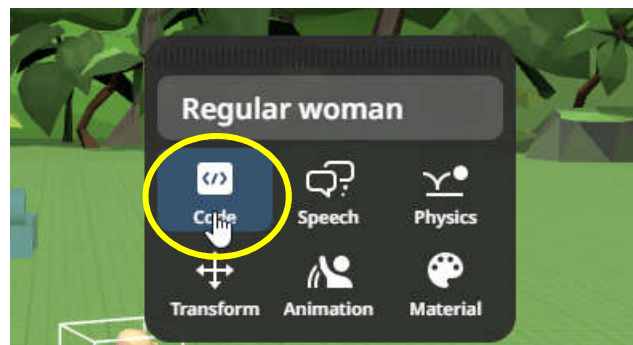
### Task 1. Quiz

*Create a quiz with at least 5 questions.*

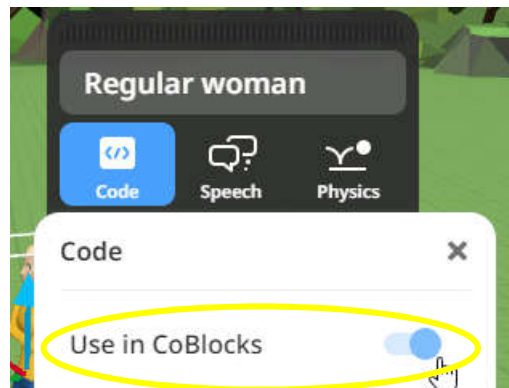
**Step 1.** Sign in to a CoSpace account and start a project.

**Step 2.** Choose the character and the background (Library, Environment).

**Step 3.** Enable programming functions for our uploaded character. Right-click on the character, select the "Code" button.



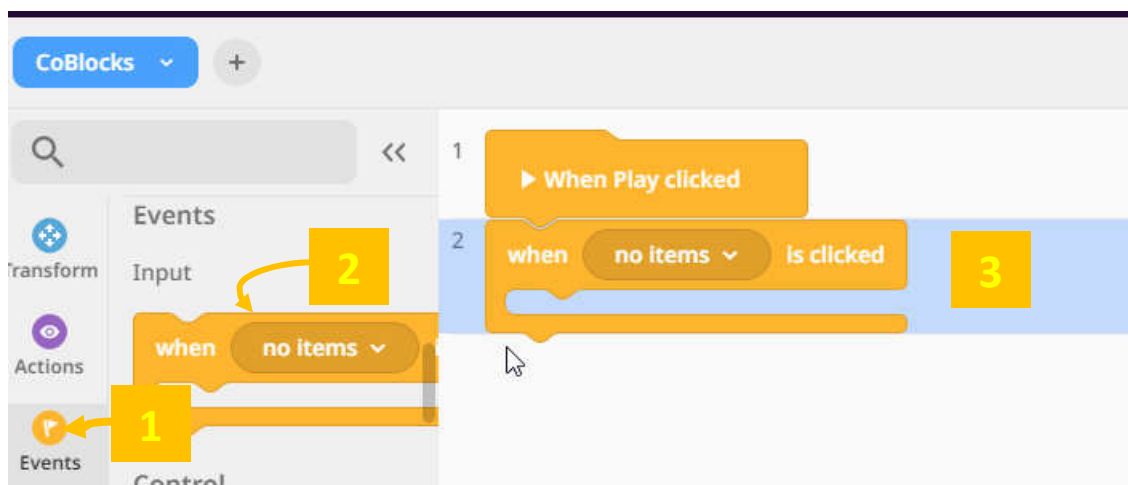
**Step 4.** After selecting the "Code" button, click on "Use in CoBlocks".



**Step 5.** Click the Code button in the top right corner of the program.



**Step 6.** Select the "Events" section and find the "When (no items) is clicked" block, which we place next to the "When play clicked" block.

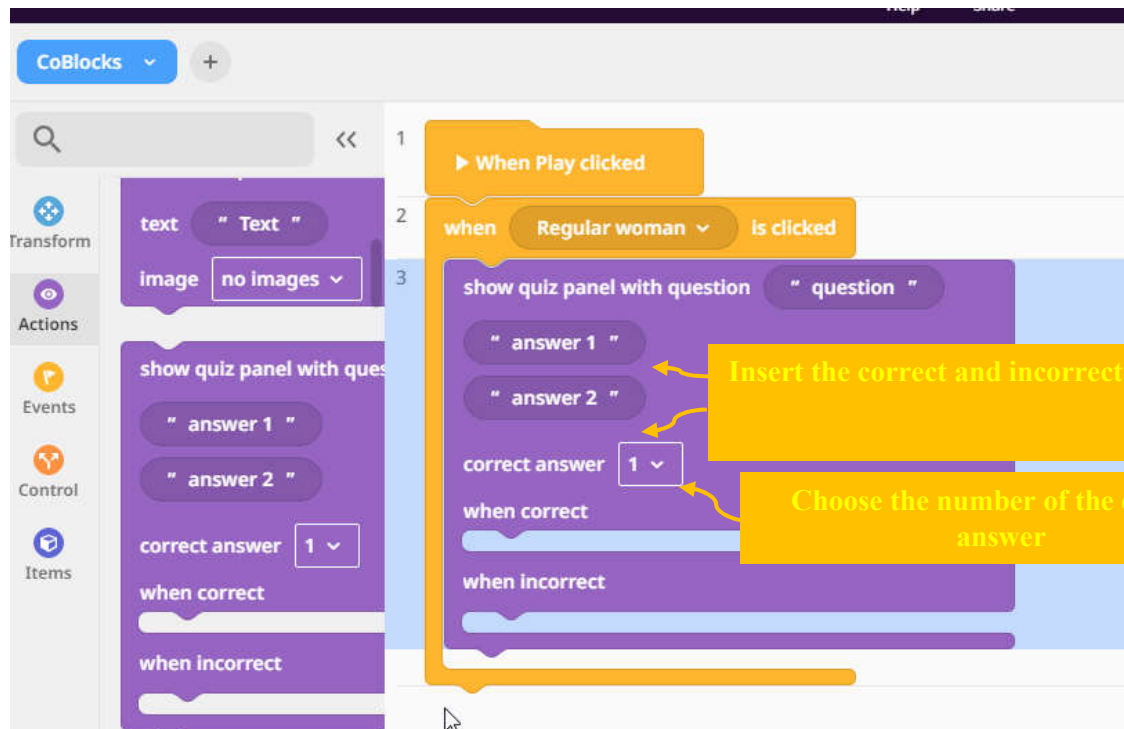




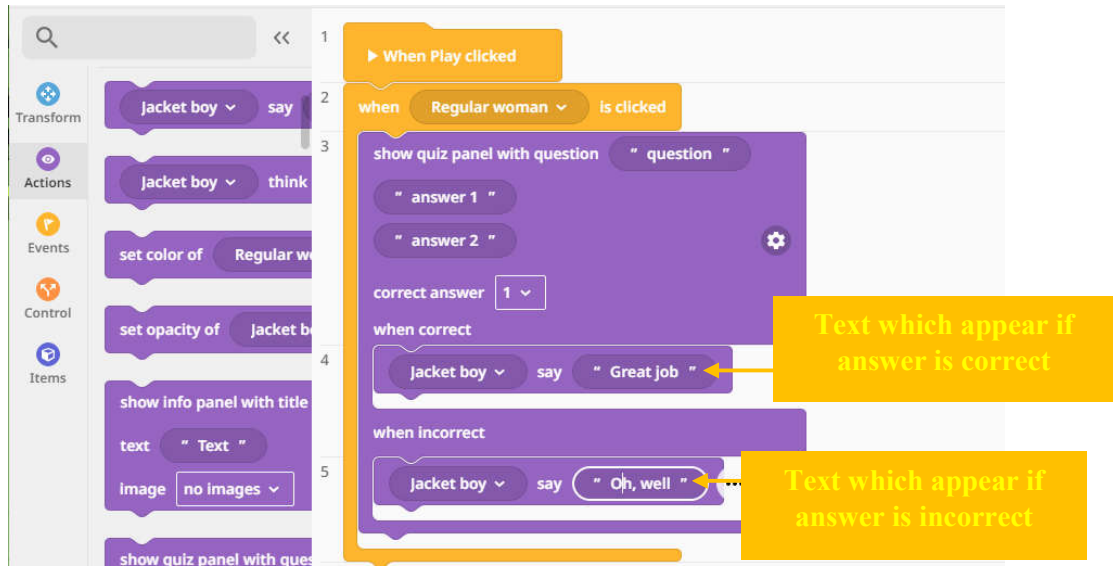
**Step 7.** In the "When (no items) is clicked" block, select the character you want to program.



**Step 8.** Select the "Actions" section and insert the "Show quiz panel with question (question)" block. Instead of the "question" text, write your own question.



**Step 9.** Select the Actions section and insert the block “**Say (hi)**”, instead of “hi” text write a message if the answer is correct and if the answer is incorrect.



**Step 10.** Complete the quiz, add more questions, characters, program the movement of the characters after a sentence, review your project ("Play" button) and share your project link ("Share" button).



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# Introduction to programming. Creating our virtual world in VR and AR





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# MY GEOMETRIC HERO

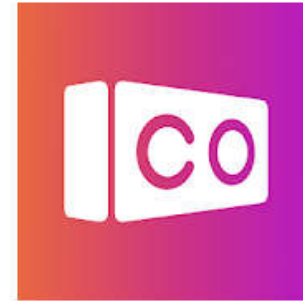
DAY 4

VR vs. AR  
Equipment  
and Easiness



**IF** the light is red,  
**THEN** stop!

**IF** the light is green,  
**THEN** go!



CoSpaces Edu

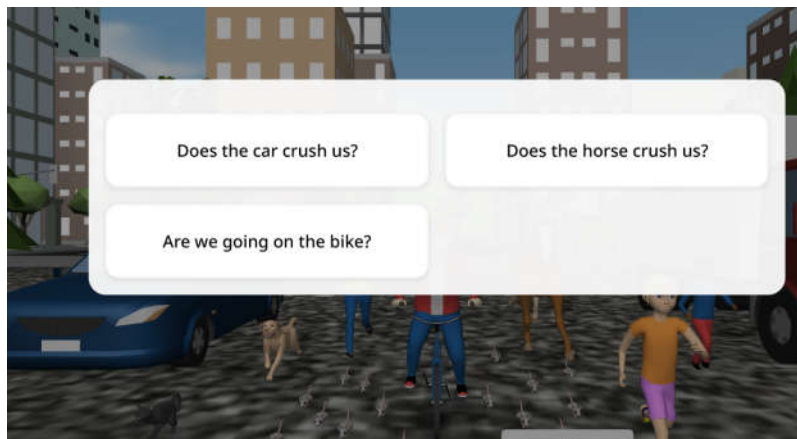
Delightex GmbH Education

**E** Everyone

 Add to Wishlist

# WHAT WE DID YESTERDAY?

Our first virtual world

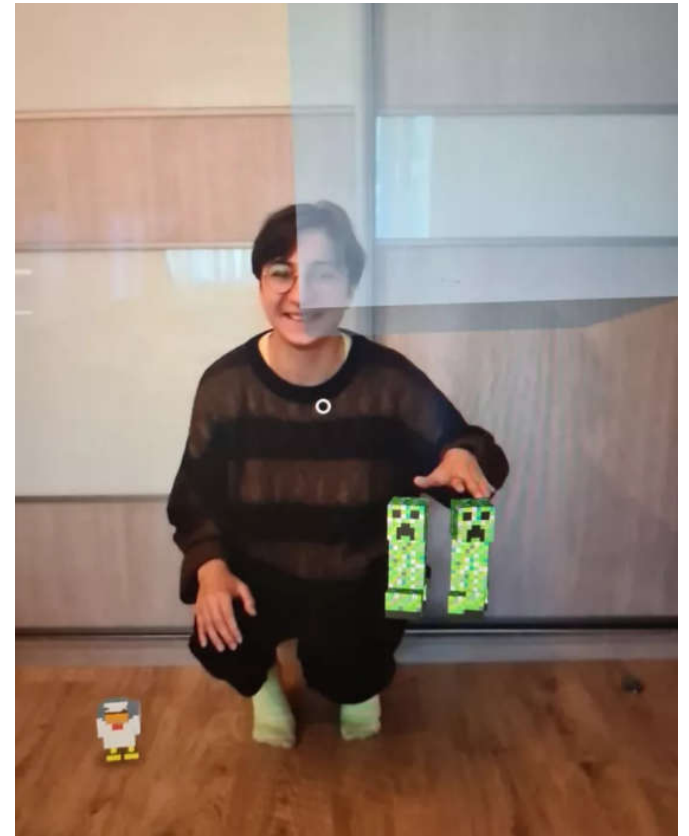


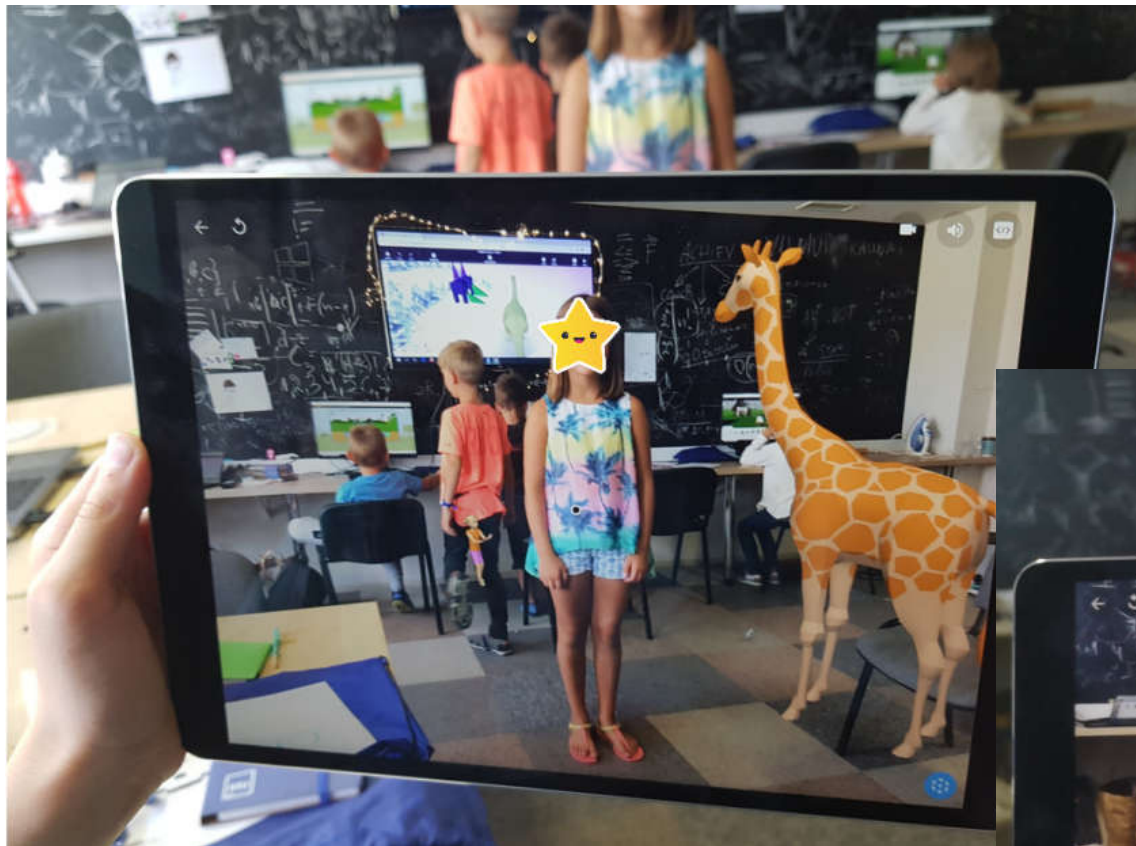


Hm...


Let it be!







Add your opinion of today lesson. You can add a printscreen/photo of your project reviewed in AR or else.



8

3 comments

Anonymous 16h  
Fatma Dönmez 🙌🙌🙌

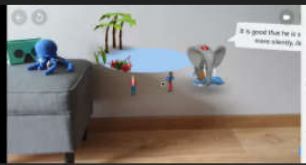
Anonymous 16h  
Harika 🙌🙌🙌

Anonymous 14h  
<https://edu.cospaces.io/HMC-XUY>

Add comment

Sardarescu Carmen 16h  
Carmen from Romania

I liked to know about conditionals




1

Add comment

Richiteanu Gina-Eugenia 17h

Let It Be!!!



3

1 comment

Neringa Kelpsaite 1m  
You have your Grinch on the table! :)

Add comment

Enrique Picón 17h

Very interesting!! I am sure that it is a very functional tool

Stanca Alina RO

Very interesting!! Thank you.


1

Add comment

Anonymous 17h

Interesting and functional in app


<https://edu.cospaces.io/SLW-BMR>



1


Add comment

Anonymous 17h



I love this app

i think cospaces is a very interesting and practical app. I will work with it in class next year.




2

Add comment

Anonymous 17h

my project

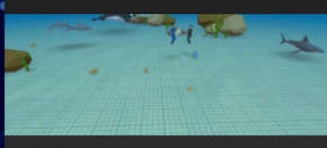
Can you get out of the maze?



CoSpaces Edu :: Laberinto  
¿Podrás salir del laberinto?

find the treasure

<https://edu.cospaces.io/GQS-YAW>




4

Add comment

Anonymous 17h


So interesting! Nice to see the characters on my floor!



3

Hola Comunidad 3D

Interesante la proouesta de CoSpace y todas las plataformas que hemos aprendido en esta semana. Gracias Clara, Rimante, Neringa, Enrique y todos los que han hecho posible este espacio de aprendizaje.



1

2 comments

Neringa Kelpsaite 12h  
Translation: "The CoSpace proposal and all the platforms that we have learned this week are interesting. Thank you Clara, Rimante, Neringa, Enrique and all those who have made this learning space possible."

Neringa Kelpsaite 12h  
Thank you very much!

Add comment

dogaru aura 16h

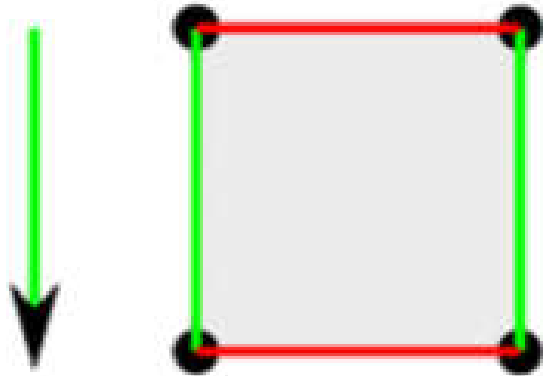


# 2D VS 3D

---

# 2D

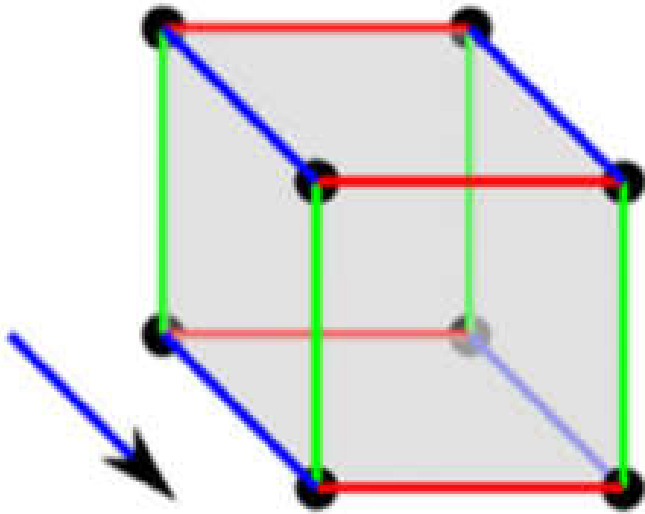
## Square



# 2D (two dimensions)

- 2-dimensional (2D) shapes have only two dimensions, length and width. They can be drawn on a piece of paper

# 3D Cube



## 3D (three dimensions)

- In geometry, a 3-dimensional shape can be defined as a solid figure or an object or shape that has three dimensions – length, width and height.



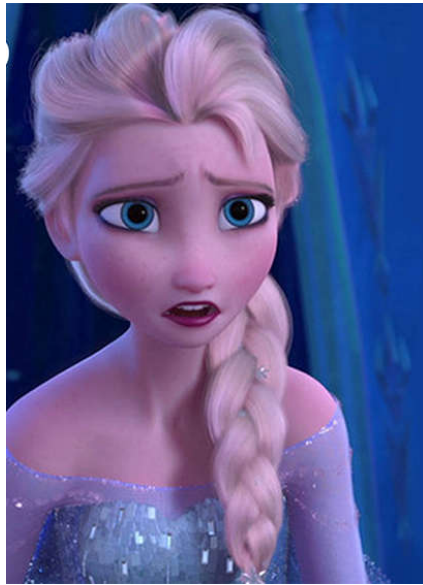
# 2D VS 3D

---



# 2D VS 3D

---



# 3D PRINTING



# 3D Modeling

---

- 3D modeling is a technique in computer graphics for producing a 3D digital representation of any object or surface.
- 3D models are used for a variety of fields: like video games, movies, architecture, illustration, etc.

# 3D PRINTING IN EDUCATION

---

- Not just in business and laboratories
- Also in schools, libraries, homes



[http://kvitrina.lt/3-d-spausdintuvas-tai-kelias-i-motyvacija-mokymosi-procese/#prettyphoto\[post\\_gallery\]/0/](http://kvitrina.lt/3-d-spausdintuvas-tai-kelias-i-motyvacija-mokymosi-procese/#prettyphoto[post_gallery]/0/)



<https://amb.lt/lt/naujienos/bibliotekoie-3d-spausdintavu-spausdinamos-apsaugos-priemones-medikams/1876>

# PROGRAM 3D FOR KIDS

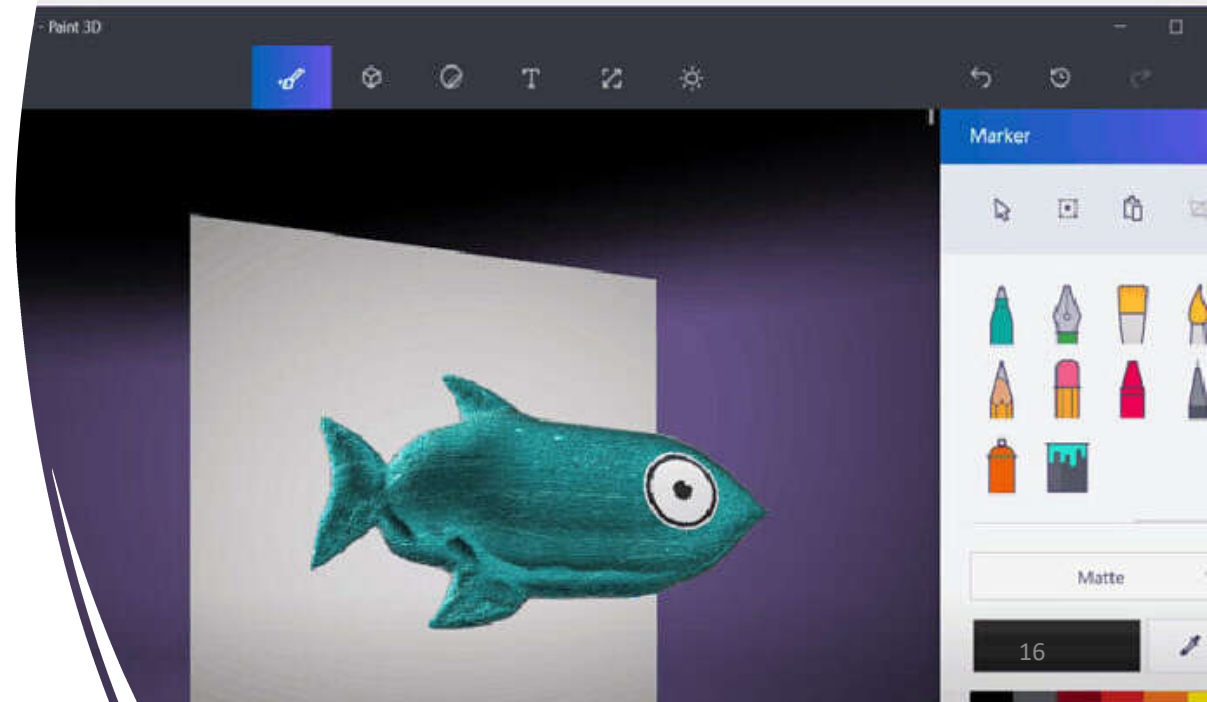
---

## PAINT 3D

[Windows 10 – installed automatically with Windows](#)



# Paint3D®

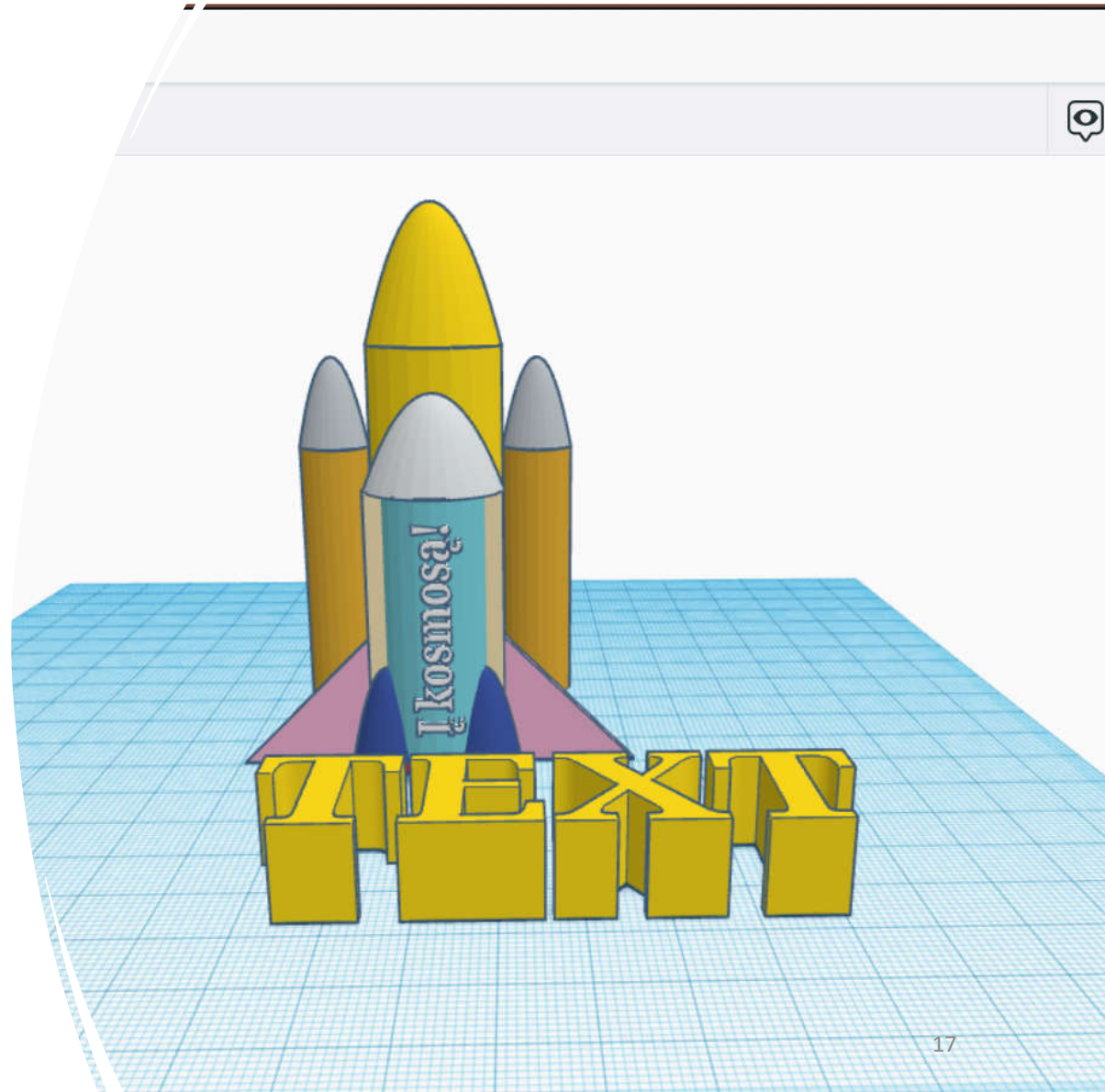


# PROGRAM 3D FOR KIDS

---

Thinkercad

<https://www.tinkercad.com/dashboard>





# PROGRAM 3D FOR KIDS

Sketchup

<https://www.sketchup.com/>



## Day 4. 4nd Project „My hero“

During this session you will perform 2 practical tasks, during which:

- Create an account in „TinkerCAD“ program.
- Will get acquainted with the „TinkerCAD“ environment.
- Learn to model your hero.

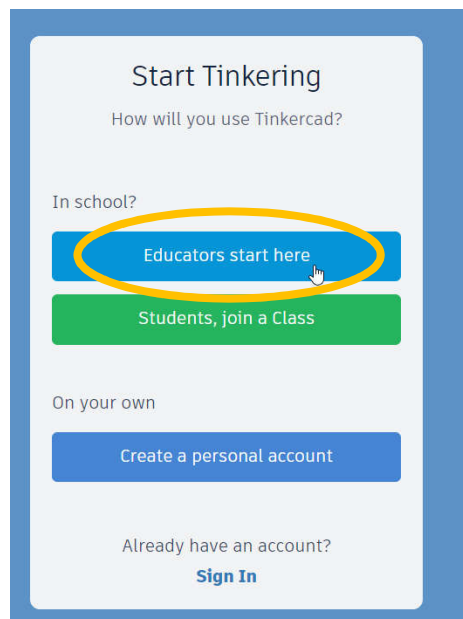
### Task 1. Create an account

**Step 1.** Open the CoSpace page in the browser. Link: [Tinkercad | Create 3D digital designs with online CAD | Tinkercad](#)

**Step 2.** Press „JOIN NOW“ button.

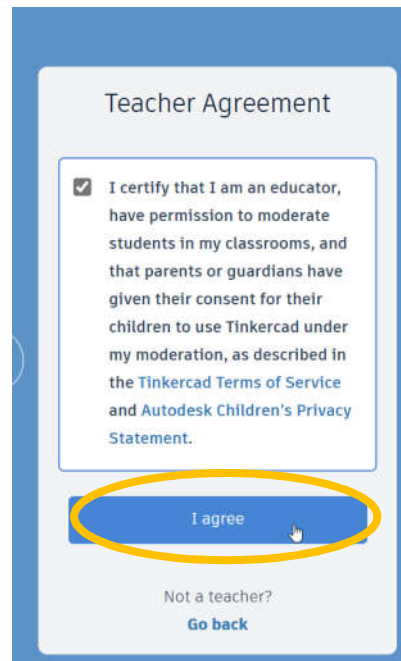


**Step 3.** Select the button „Educators start here“.



**Step 4.** Select the consent button „Continue to start making my educator account“.

**Step 5.** Click the checkbox and the consent button „**I agree**“.



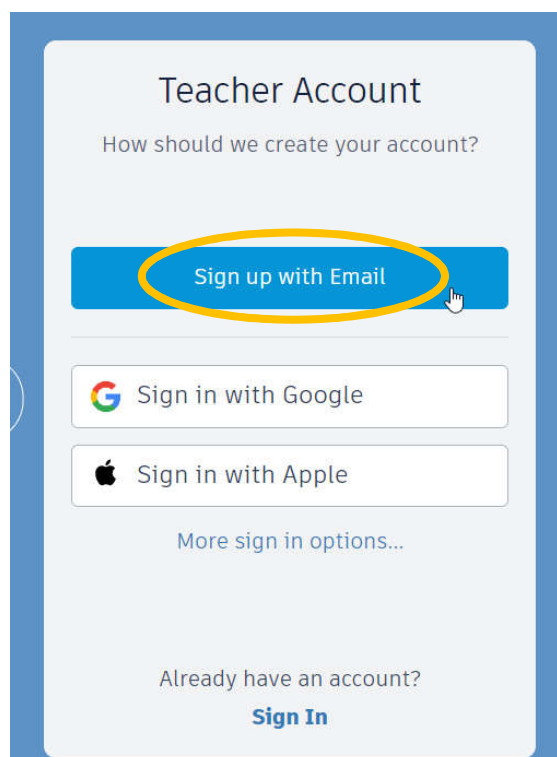
Teacher Agreement

I certify that I am an educator, have permission to moderate students in my classrooms, and that parents or guardians have given their consent for their children to use Tinkercad under my moderation, as described in the Tinkercad Terms of Service and Autodesk Children's Privacy Statement.

I agree

Not a teacher?  
[Go back](#)

**Step 6.** Select the button „**Sign up with Email**“.



Teacher Account

How should we create your account?

Sign up with Email

Sign in with Google

Sign in with Apple

[More sign in options...](#)

Already have an account?  
[Sign In](#)

**Step 7.** Create an account by entering an email and password.

### Create account

Email

Password

I agree to the [Tinkercad Terms of Service](#) and the [Autodesk Privacy Statement](#).

**CREATE ACCOUNT**

ALREADY HAVE AN ACCOUNT? [SIGN IN](#)

**Step 8.** Select the country and year of birth, click the "Next" button.

### Create account



Country, Territory, or Region

Select Country, Territory, or Region

Birthday

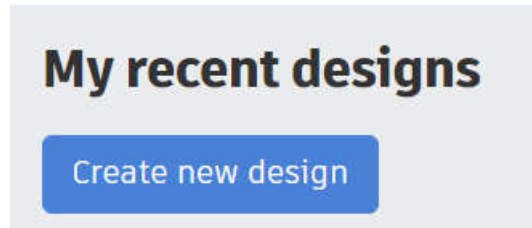
Month  Day  Year

**NEXT**

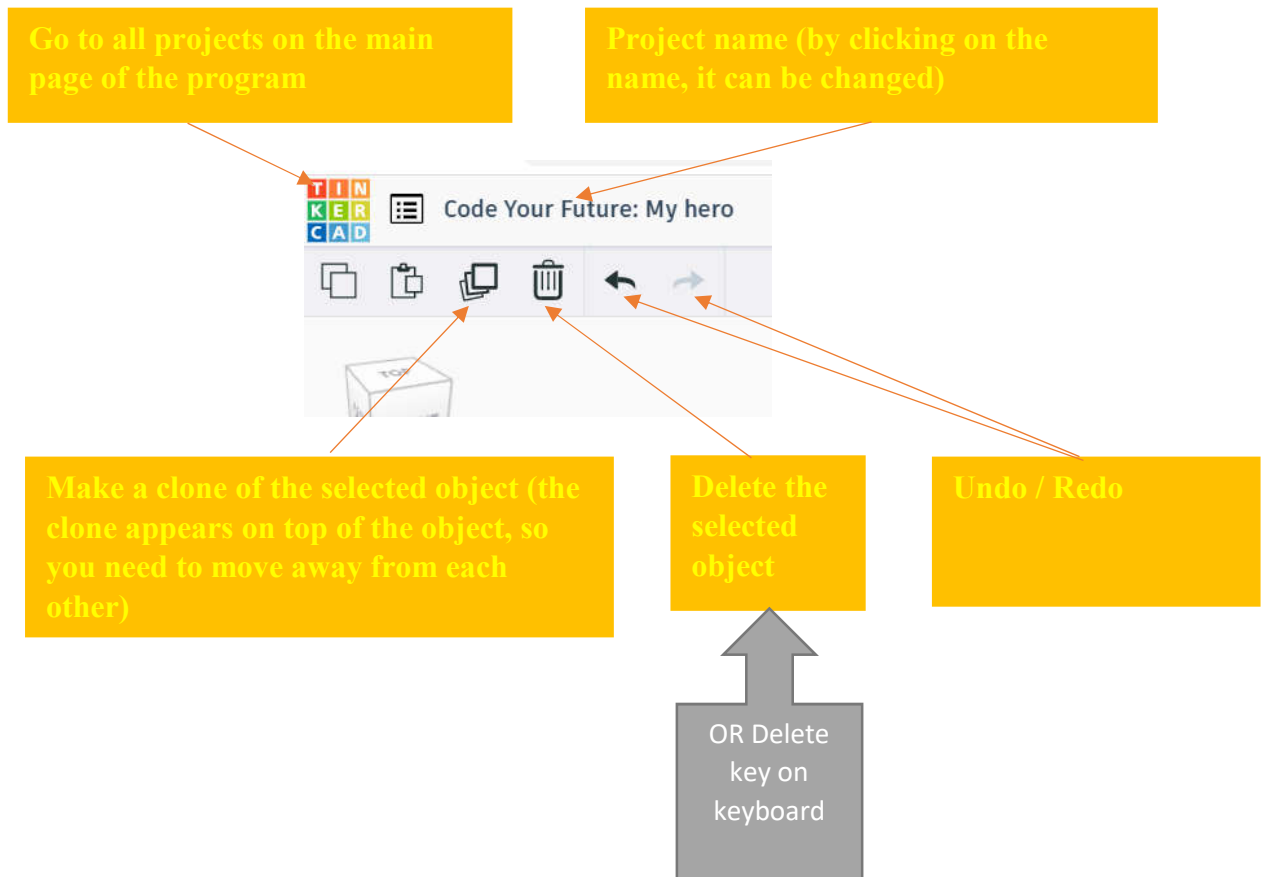
ALREADY HAVE AN ACCOUNT? [SIGN IN](#)

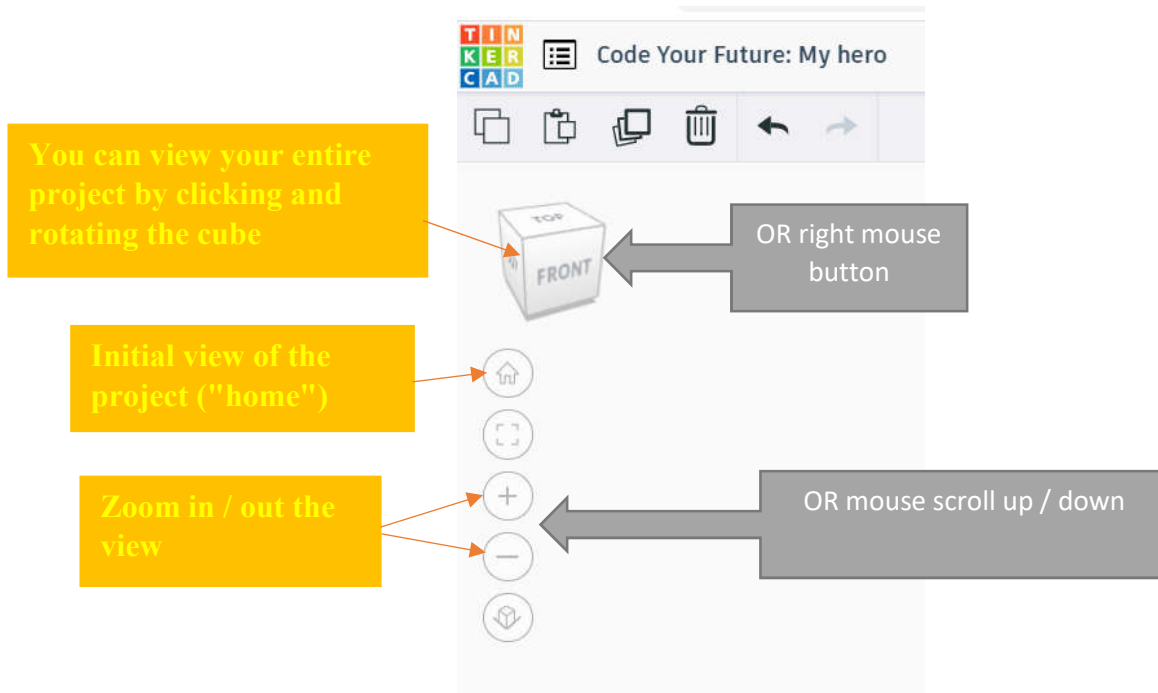
## Task 2. My hero

**Step 1.** Creating a project. Click the "Create new design" button.



**Step 2.** Navigation.





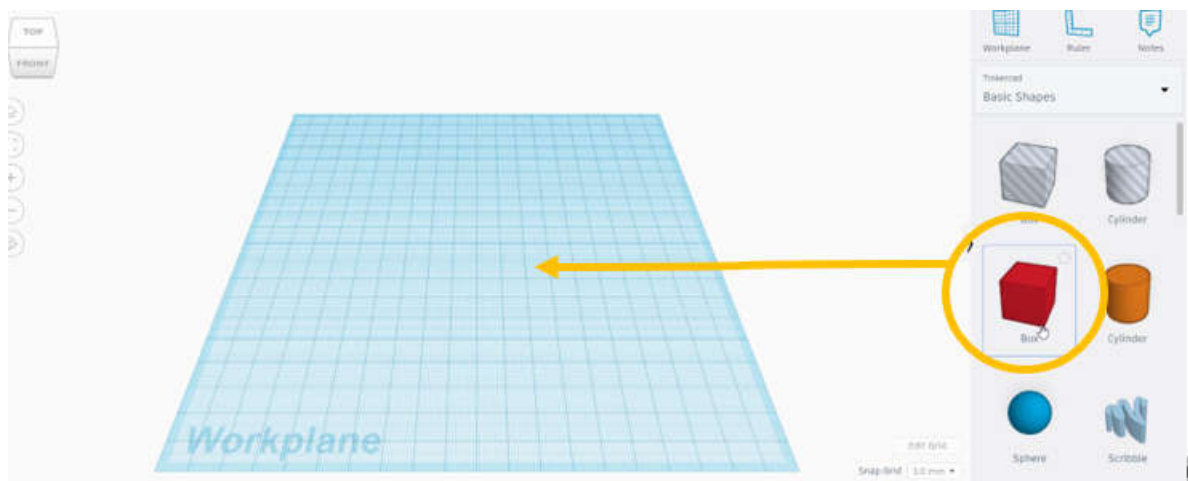
Video about navigation Tinkercad (in English):

<https://www.youtube.com/watch?v=VxpJbJsNaes>

Navigation video (longer, but Youtube auto-subtitles are available in any foreign language (e.g. Italian, Lithuanian, Spanish, Romanian, Turkish, etc.)):

<https://www.youtube.com/watch?v=2JFxtUIOnEI>

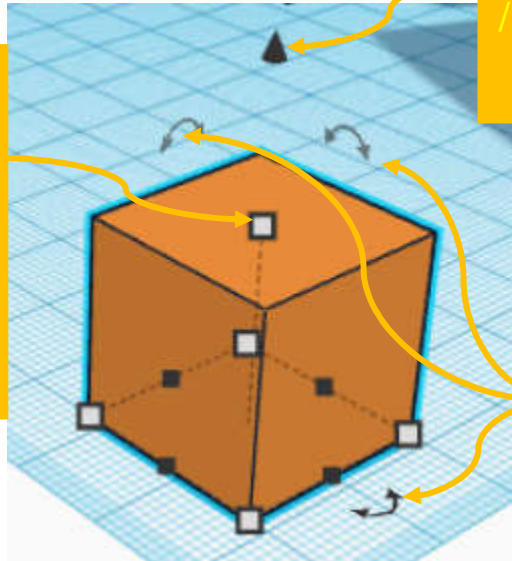
**Step 3.** Drag the desired object.





**Step 4.** Editing an object.

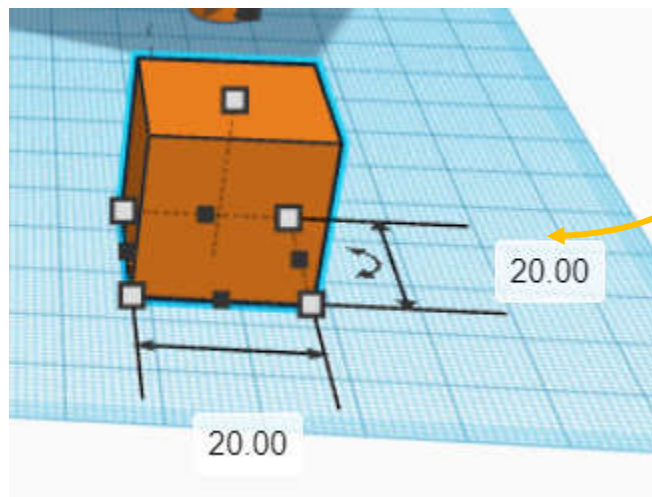
**5 white little squares:** height, width and length. You can increase/reduce the object by clicking and dragging on the white square.



**1 black cone: lift up / down**

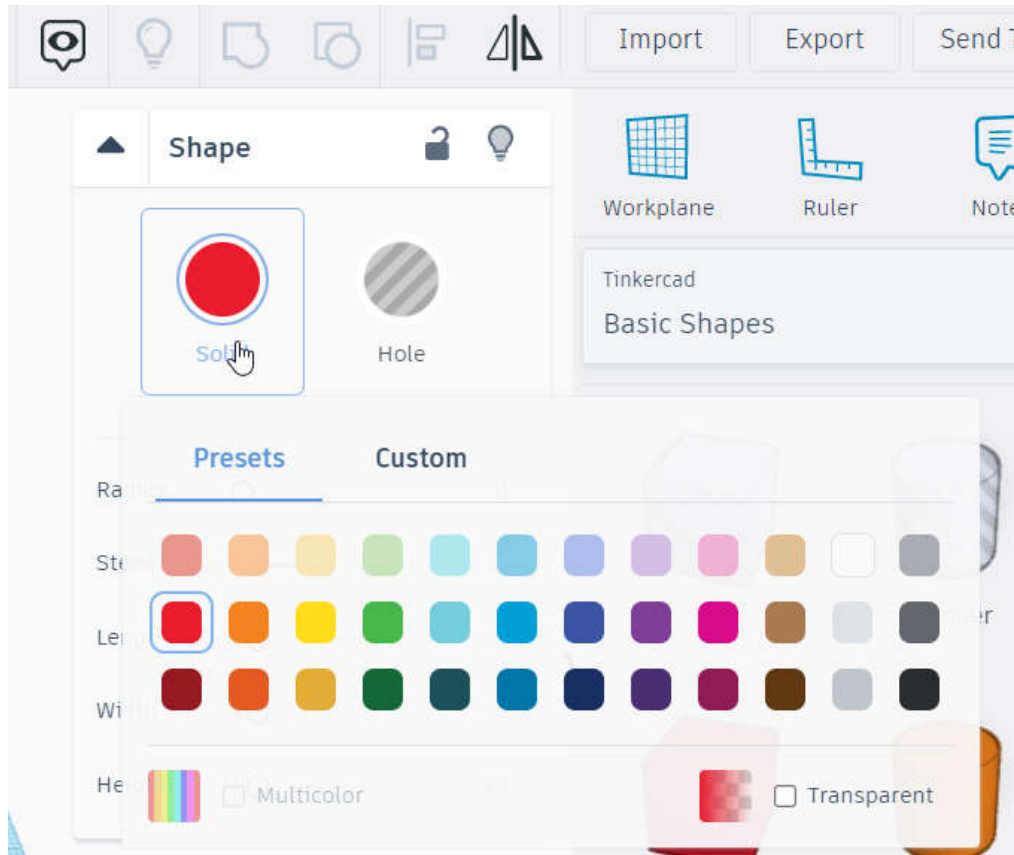
OR keyboard arrow keys

**3 arrows - for rotations in three dimensions**

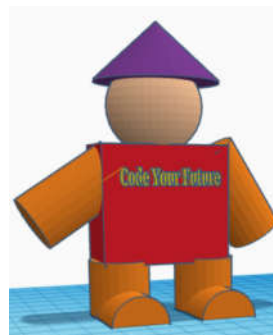
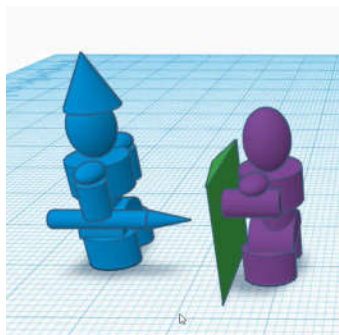


**By clicking on the white square, then on the number you can give the exact dimensions of the figure in millimeters**

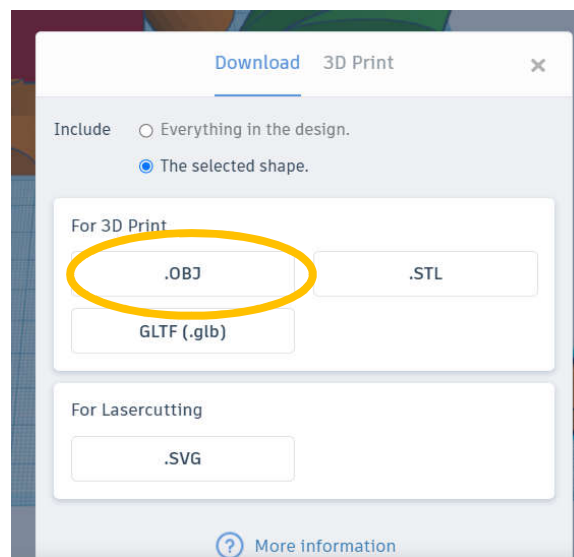
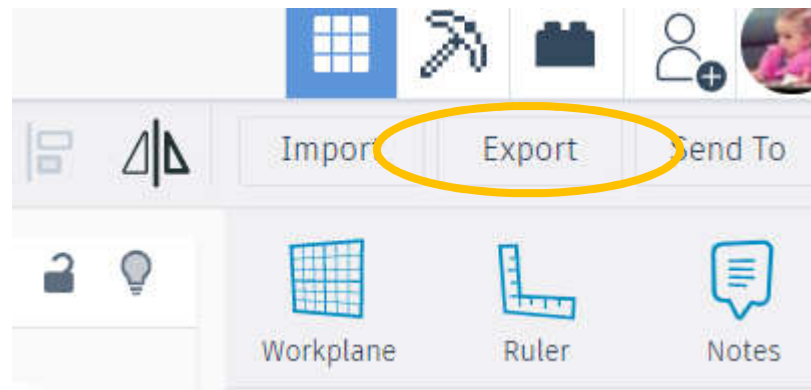
**Step 5.** Change the color of an object: highlight the object and select a color.



**Step 6.** Model your hero which will be programmed on walkinh through a maze (next day's theme): select geometric shapes (objects) on the right side, drag them to the center of the screen on a blue background (Workplane). To put the shapes on top of each other to will help by rotating the whole view (with the navigation cube on the left side or right mouse button).



**Step 7.** Download the completed project / your hero to your computer for the next lesson project – in order to upload to CoSpaces (a .zip file will be created).



If you have a 3D printer (personal, school or library), you can print your object by downloading the file in .stl format.

Video on how to model a little machine and print with a 3D printer (in English):

<https://www.youtube.com/watch?v=tyQgkeZ3hsA>

More about Tinkercad (information for beginners, keyboard shortcuts, 3D printing materials, etc.): <https://blog.tinkercad.com/tag/new-to-tinkercad>



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# Introduction to programming. Creating our virtual world in VR and AR





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# THE MAZE

DAY 5

Which one is 3D?



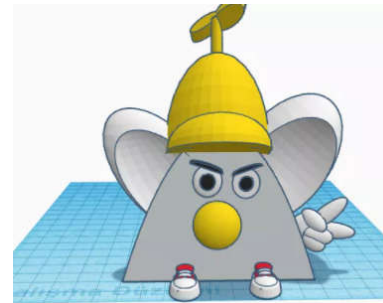
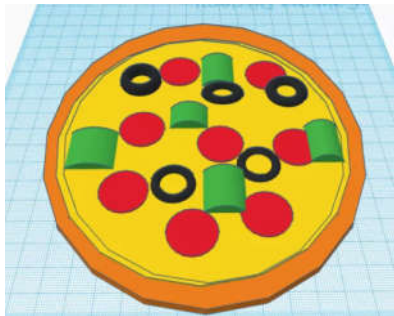
rise your both hands up



artificial goggles



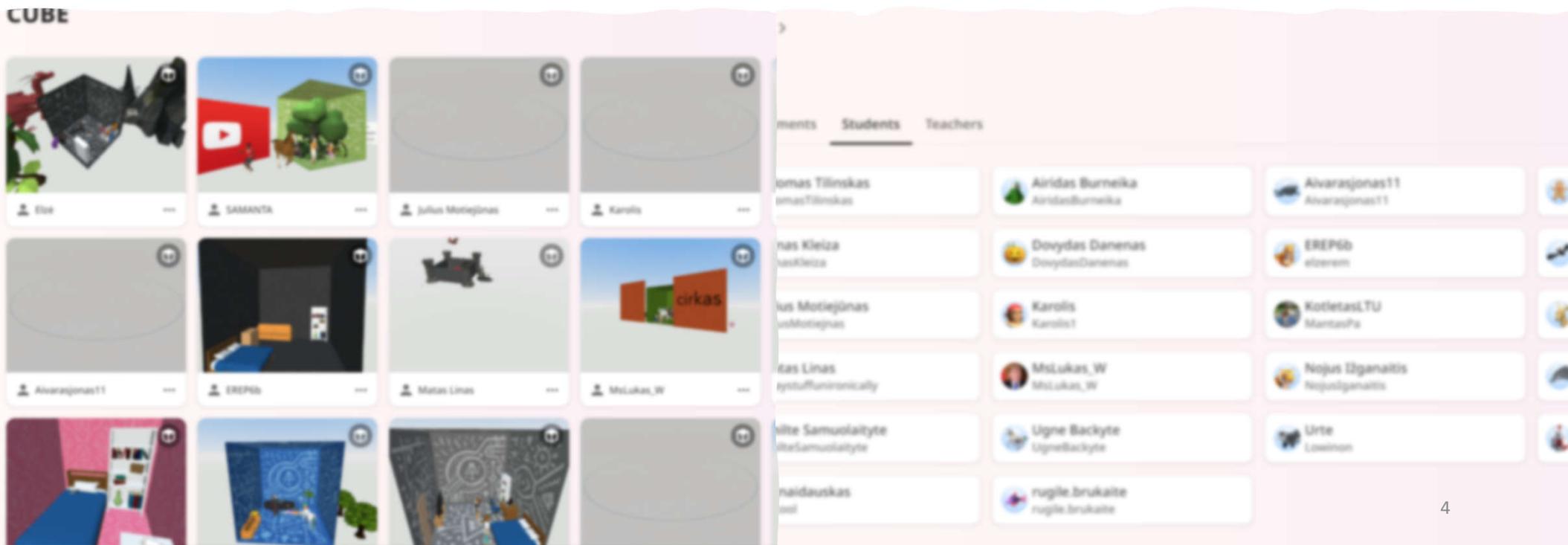
# WHAT WE DID YESTERDAY?





# Teacher's account

- Manage classes and students
- Share online assignments
- Observe student work



# Pro Version

<https://cospaces.io/edu/>

Free trial version 30 students, 30-days

**CO SPACES EDU** Key features ▾ Pricing Resources ▾ Support Ambassadors

**BASIC**

**Free**  
Get started with the basic features

**PRO**

**From USD 74.99 per year**  
Create with all features and no limits

**30-day trial code  
COSProTrial**

**Choose the Pro plan you need**

Each seat can be used by either a teacher or a student.

[Download pricing list \(pdf\)](#)

- ✓ All CoSpaces Edu features and 3D objects
- ✓ Invite students and teachers
- ✓ Add co-teachers to your classes
- ✓ Publish to the CoSpaces Edu Gallery
- ✓ Remix CoSpaces from the Gallery
- ✓ Code with all CoBlocks or script languages
- ✓ Use the built-in Physics engine

# Trial Version

- Free trial version **100** students, 30-days
- Merge Cube



Supporting you with remote learning during COVID-19

[View resources >](#)

Remote  
teacher  
guide

Download pdf 



FREE CoSpaces Edu Pro trial!

Enter the trial code:

**COSREMOTE20**

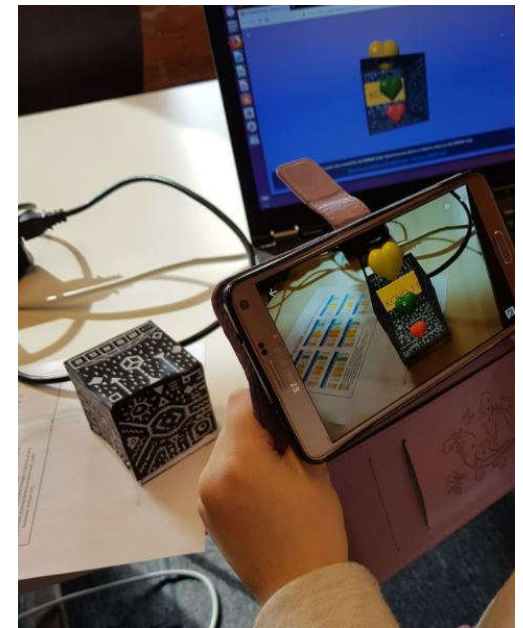
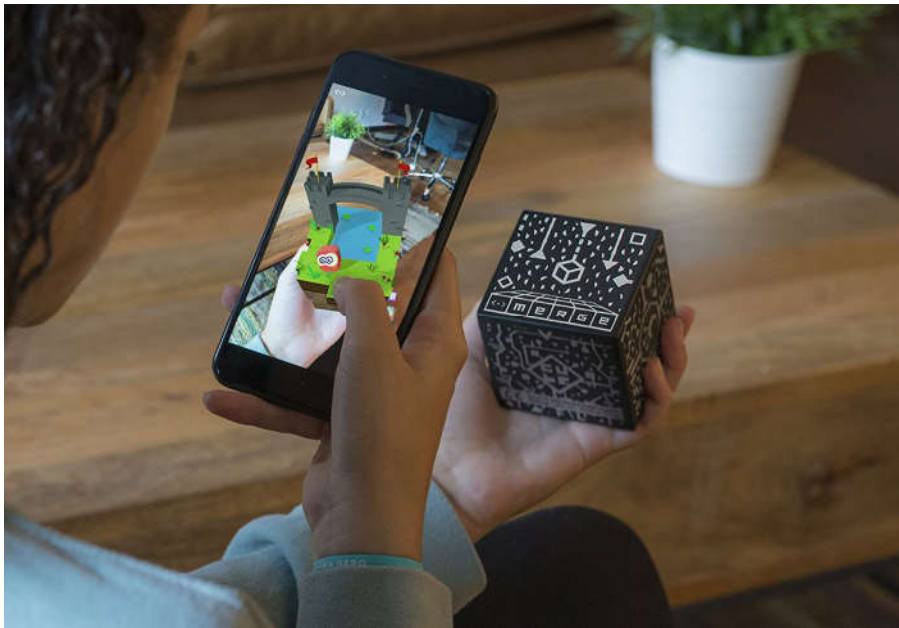
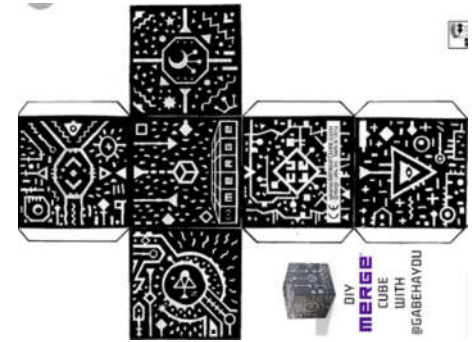
to test CoSpaces Edu Pro  
for 30 days with 100 seats  
(1 teacher + 99 students)

including all Pro features and add-ons!



# Merge Cube

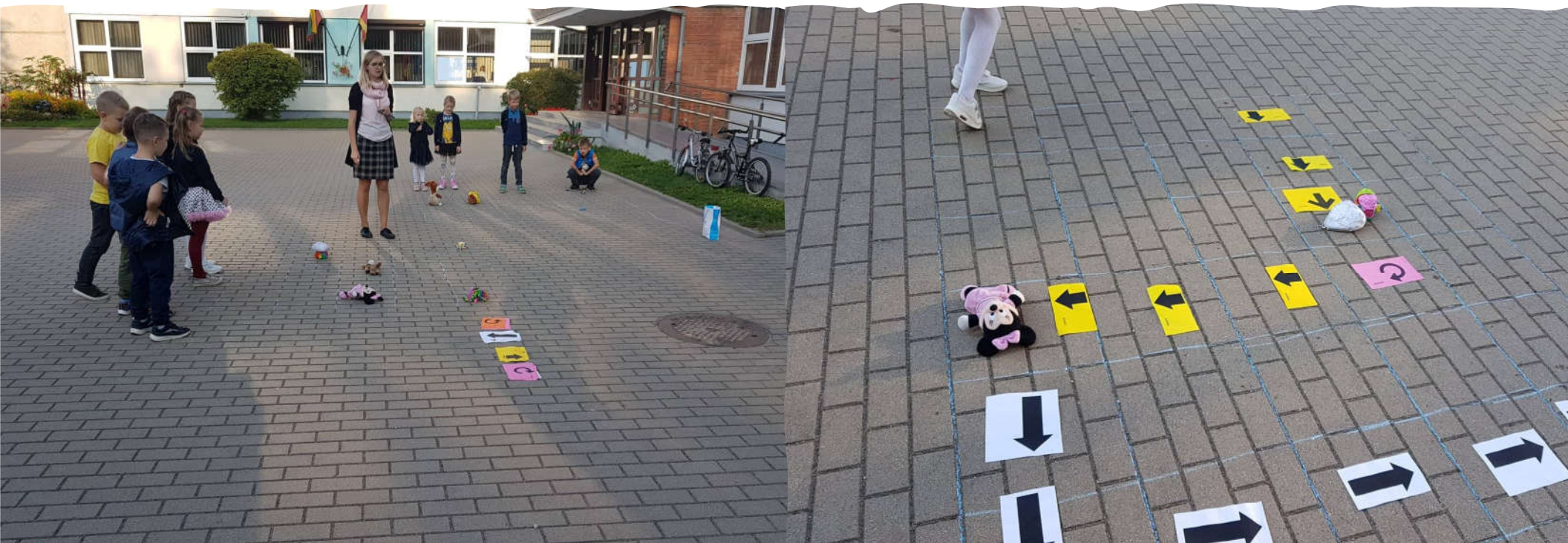
- Printable Merge Cube Template
- <https://www.pinterest.com/pin/712624341022398957/>





# Step by step

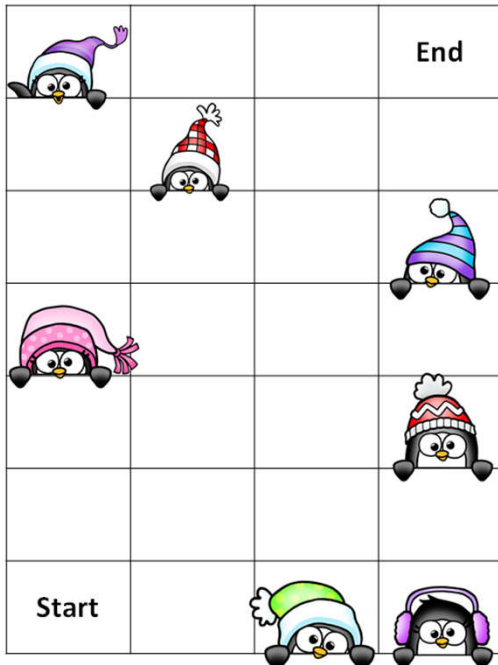
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# Step by step

<https://janiel4smom.com/2020/10/technology-words-on-algorithm-game-boards.html>

Penguin Algorithm Game Board



## Technology Words on Algorithm Game Boards

**Technology Word Algorithm Game Board**  
Connect the boxes with arrows to spell the word computer.

→	→		
	↓	←	
↑			↑
↑	↓		↑
↑	↓		↑
Start ↑	→		↑

Created by jDaniel4Smom.com

Moon Phases in Order Coding Activity

Start			

Created by Deirdre Smith of jDaniel4Smom.com





# Scottie Go!

<https://scottiego.com/en/>





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of the European Union

**Thank you for your attention!**



- Pridet heroju I cospaces
- nubraizyti savo labirinta/

# Hello Ruby



<https://www.helloruby.com/>

Buna template, pamoku planu, knygos medžiaga parsisiuntimui, reikia sekti.  
Instagrame galima, sekti, ted konferencijos, mielai dalinas  
Ruby – programavimo kalba. Visi veikejai susije su programavimo elementais.

- Kurybine uzduotis: practice/action/game without computer - planas/piesimas/braizymas - igyvendinimas
- Kai nemoka skaityti – algorimta aiskinti rodyklemis

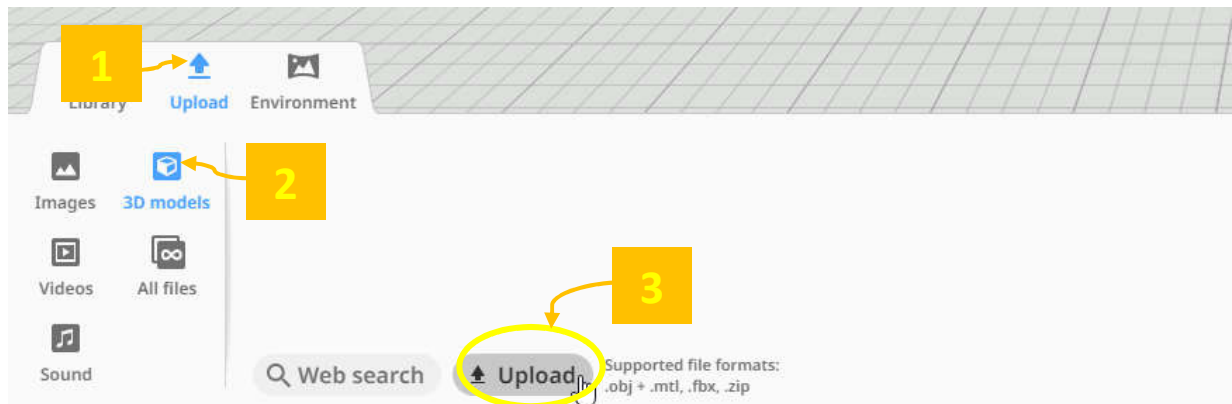
## 5 DAY „The Maze“

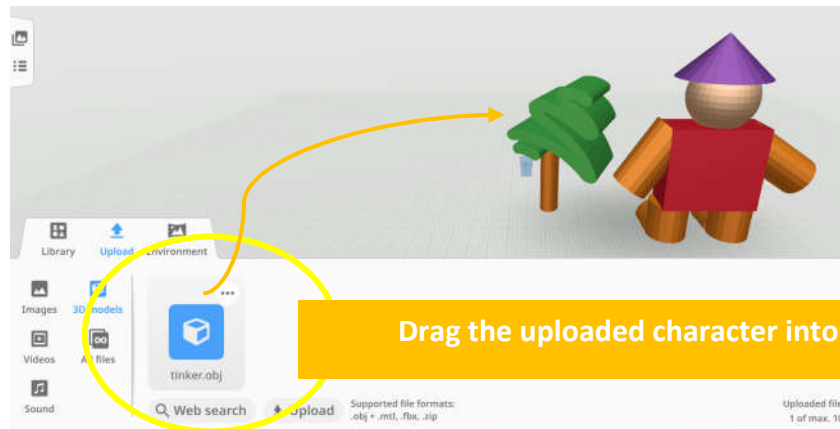
During this sessions you will complete 2 practical tasks:

- Upload the hero you created with “TinkerCAD” to the „CoSpaces“.
- Remember the „Cospaces“ environment and navigation.
- Learn to program the movement of the character.

### 1. Task: upload the character

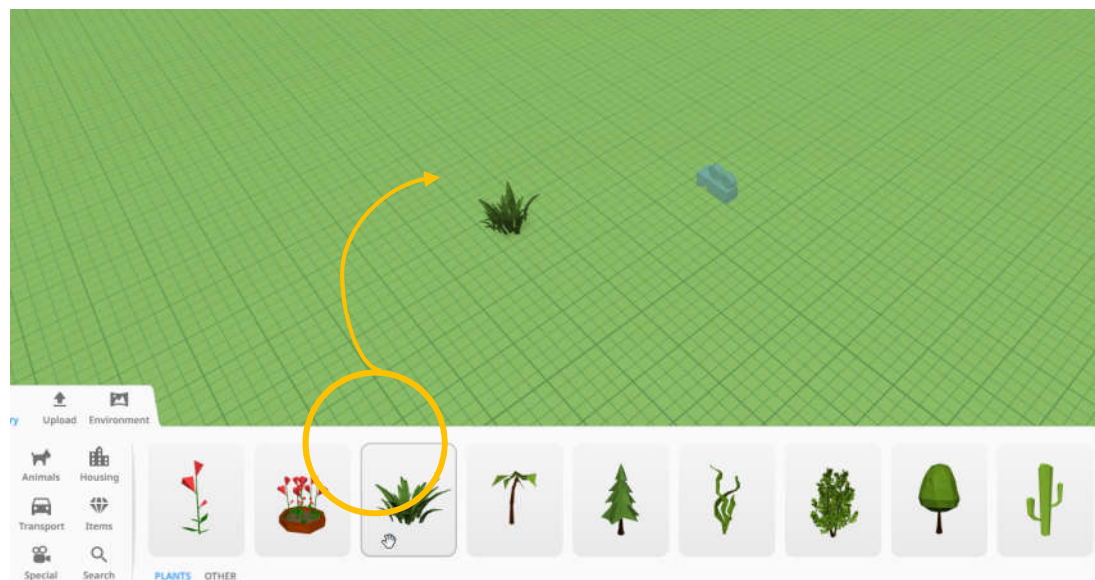
- 1. Step.** Sign in to the „CoSpaces“ account and start a new project. Choose your „Environment“, where you will create the maze.
- 2. Step.** Upload the character (your hero), created with “TinkerCAD” program (.zip file, downloaded from “TinkerCAD”). The instruction of downloading the character to the computer is on 4 DAY “My hero” instructions.





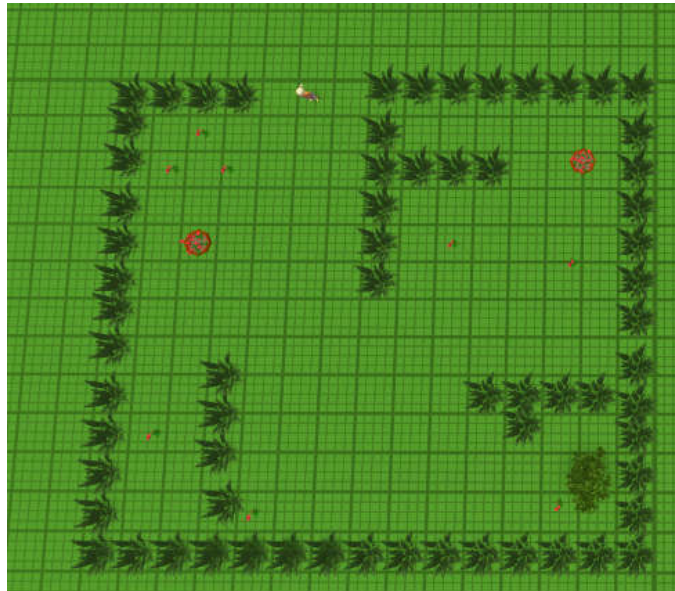
## 2. Task: The creation of the maze

1. **Step.** Upload a plant / cube or other object that you will use to create the maze.





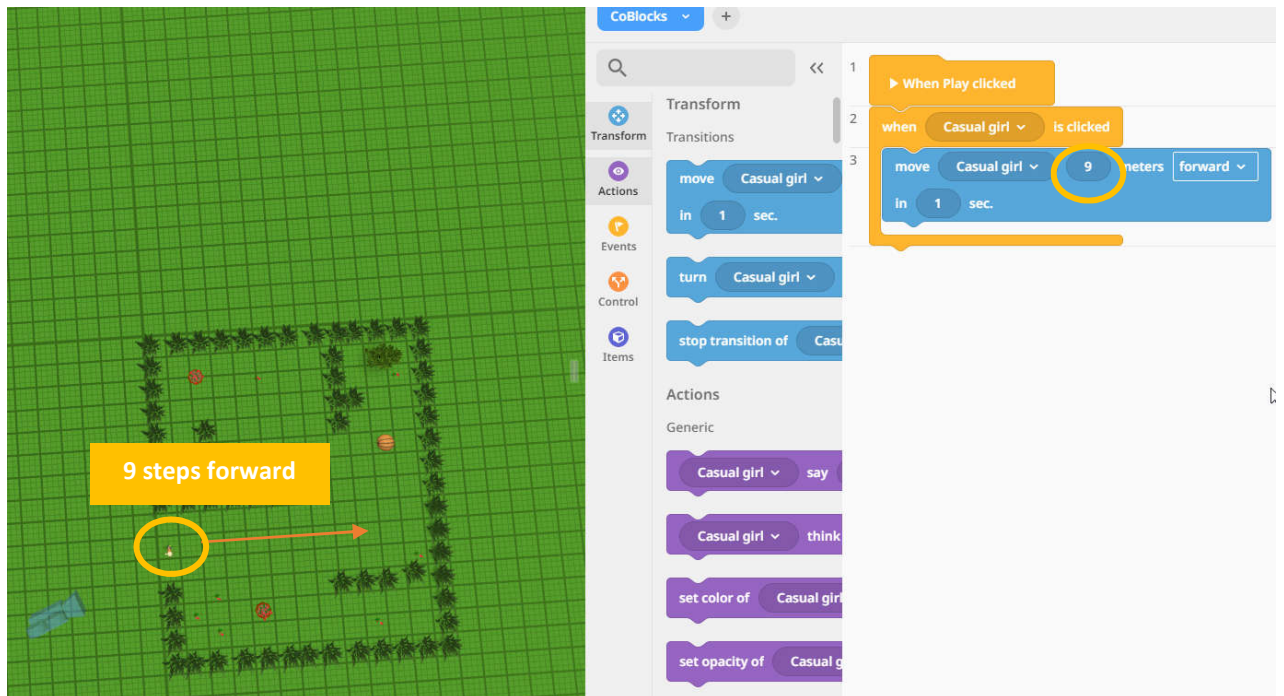
- 2. Step.** Upload more characters to create the maze and 3 objects, that your hero will have to reach in the maze.



- 3. Step.** Enable programming for the character who walks in the maze (turn on „Use in CoBlocks“). Find and drag to the programming area a block „When (no item) is clicked“ and choose your character.

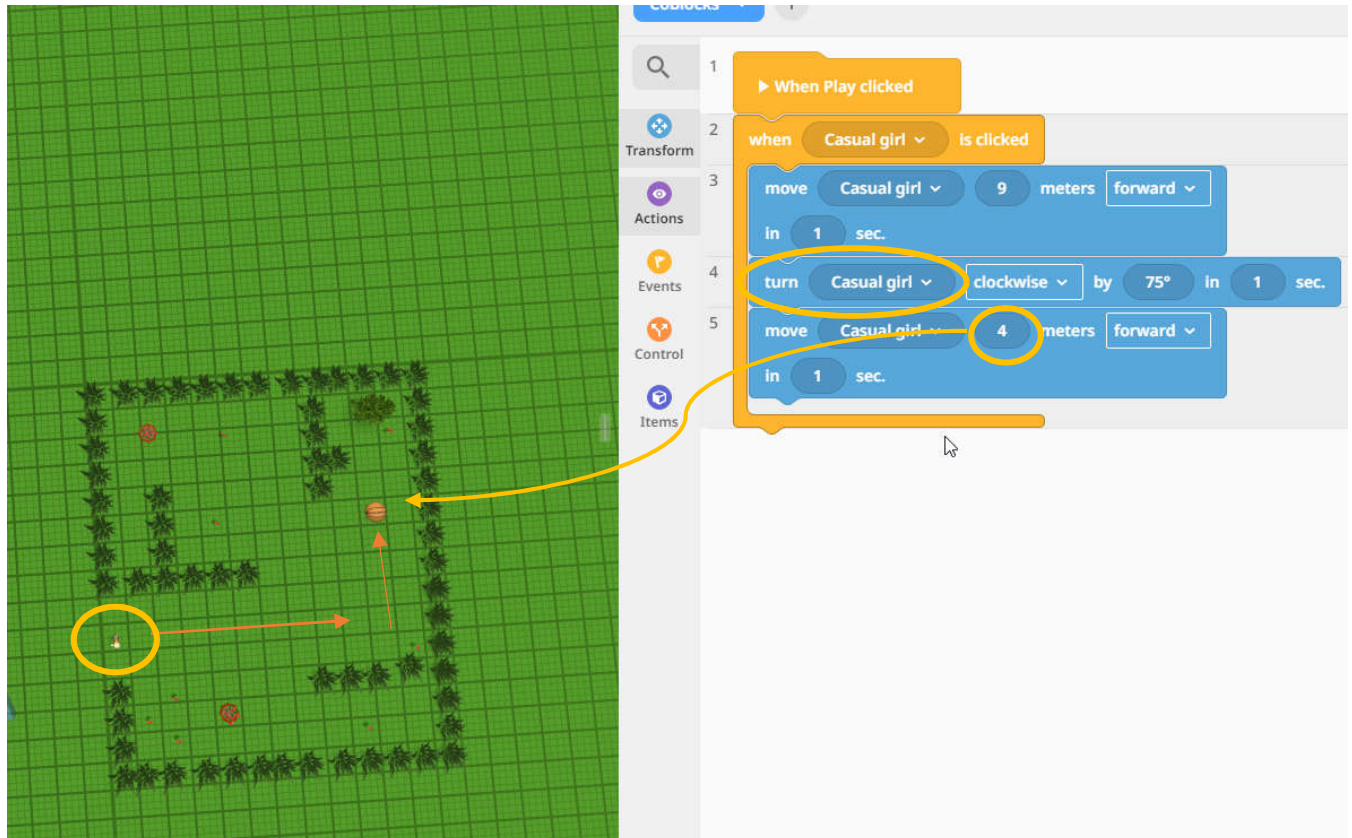


- 4. Step.** Find and use the block „Move“ and type in the number of counted steps you're your hero to move forward. Right before it will need to turn.



- 5. Step.** Continue with the block „Turn“. You can adjust the direction of the turn (clockwise or other), the degree of rotation (in the example 75 degrees) and the speed of rotation (in the example – in 1 second).

Then put the movement block again („Move“) and type in the steps that your hero should reach the ball or other object.



- 6. Step.** Program the character to walk to all three uploaded objects. Also you can try to use other blocks and program the changes if the hero comes to the object that it would change the color or other. Be creative.

View your project (“**Play**” button) and share your project link (“**Share**” button).