Γραφικά Υπολογιστών

Ιόνιο Πανεπιστήμιο
Τμήμα Πληροφορικής

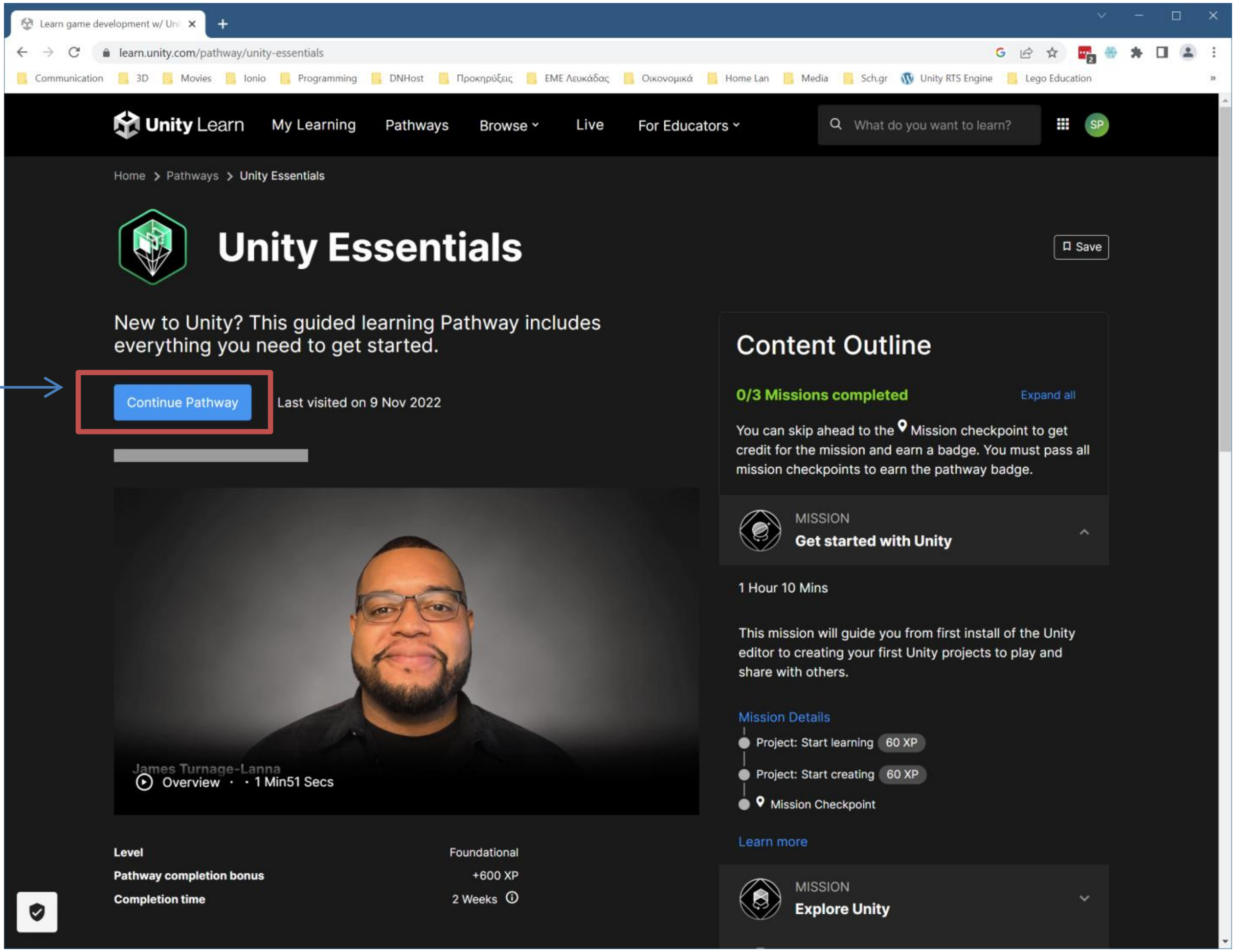
Στέργιος Παλαμάς, Επίκουρος Καθηγητής

Μάθημα 5:

Εισαγωγή στο Unity Game Engine

Τα «Pathways» είναι ενότητες με tutorials του Unity με συγκεκριμένη θεματική

Έναρξη →



Unity Essentials

New to Unity? This guided learning Pathway includes everything you need to get started.

Last visited on 9 Nov 2022

Level	Foundational
Pathway completion bonus	+600 XP
Completion time	2 Weeks

Content Outline

0/3 Missions completed

You can skip ahead to the Mission checkpoint to get credit for the mission and earn a badge. You must pass all mission checkpoints to earn the pathway badge.

MISSION
Get started with Unity

1 Hour 10 Mins

This mission will guide you from first install of the Unity editor to creating your first Unity projects to play and share with others.

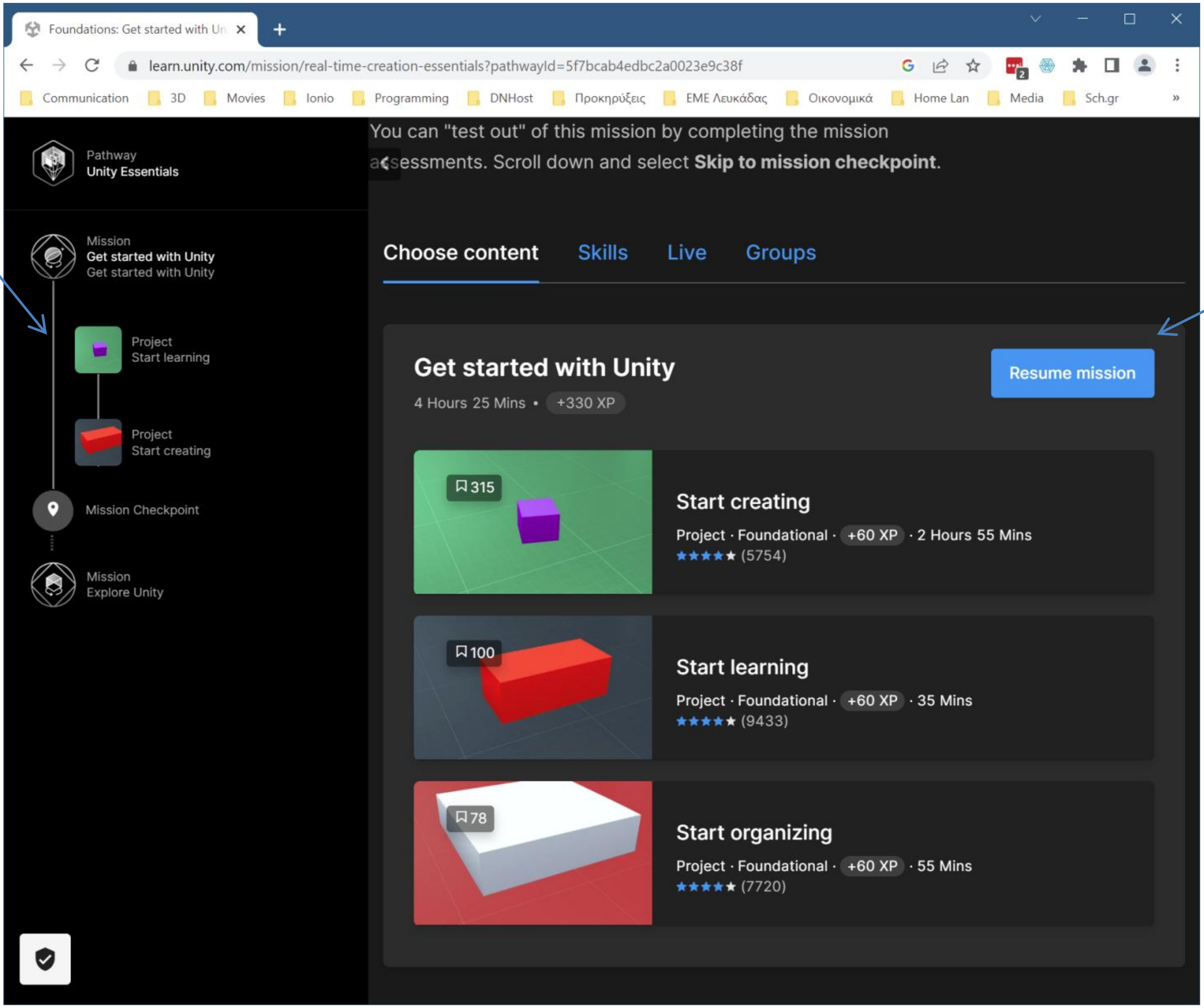
Mission Details
- Project: Start learning 60 XP
- Project: Start creating 60 XP
- Mission Checkpoint

MISSION
Explore Unity

https://learn.unity.com/pathway/unity-essentials

Δομή

Εξέλιξη


Foundations: Get started with Un
learn.unity.com/mission/real-time-creation-essentials?pathwayId=5f7bcab4edbc2a0023e9c38f
Communication
3D
Movies
Ionio
Programming
DNHost
Προκηρύξεις
ΕΜΕ Λευκάδας
Οικονομικά
Home Lan
Media
Sch.gr

Pathway
Unity Essentials

Mission
Get started with Unity
Get started with Unity

Project
Start learning

Project
Start creating

Mission Checkpoint

Mission
Explore Unity

You can "test out" of this mission by completing the mission assessments. Scroll down and select **Skip to mission checkpoint**.

Get started with Unity

4 Hours 25 Mins • +330 XP

315

Start creating

Project · Foundational · +60 XP · 2 Hours 55 Mins
★★★★★ (5754)

100

Start learning

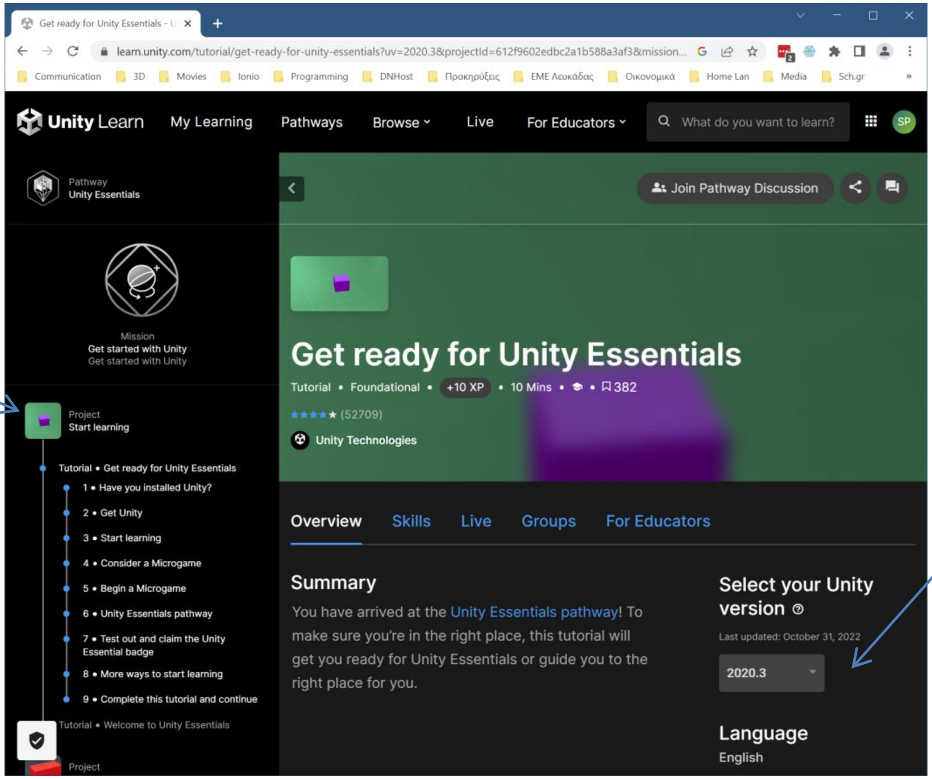
Project · Foundational · +60 XP · 35 Mins
★★★★★ (9433)

78

Start organizing

Project · Foundational · +60 XP · 55 Mins
★★★★★ (7720)

Δομή Tutorial



Pathway
Unity Essentials

Mission
Get started with Unity
Get started with Unity

Project
Start learning

Tutorial • Get ready for Unity Essentials
1 • Have you installed Unity?
2 • Get Unity
3 • Start learning
4 • Consider a Microgame
5 • Begin a Microgame
6 • Unity Essentials pathway
7 • Test out and claim the Unity Essential badge
8 • More ways to start learning
9 • Complete this tutorial and continue

Tutorial • Welcome to Unity Essentials

Project

Get ready for Unity Essentials

Tutorial • Foundational • +10 XP • 10 Mins • • 382

★★★★★ (52709)

Unity Technologies

Summary

You have arrived at the Unity Essentials pathway! To make sure you're in the right place, this tutorial will get you ready for Unity Essentials or guide you to the right place for you.

Select your Unity version

Last updated: October 31, 2022

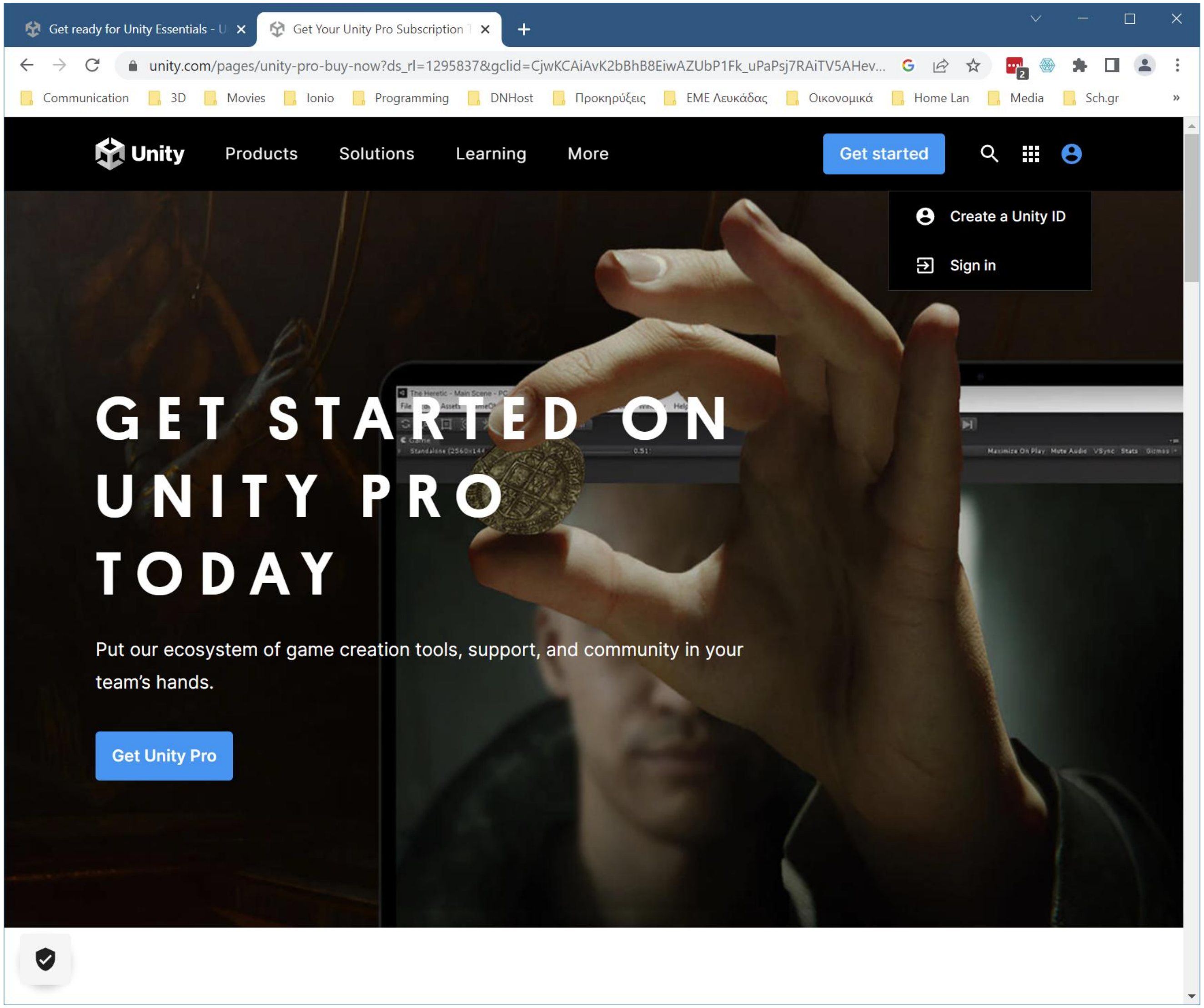
2020.3

Language
English

Έκδοση Unity (τα tutorials μπορούν να αφορούν διάφορες εκδόσεις και να είναι προσαρμοσμένα σε αυτές)

Το Unity έχει πολλές εκδόσεις. Κάθε έκδοση χαρακτηρίζεται από τον αριθμό του έτους (2019, 2020, 2021) και τον αύξοντα αριθμό υπο-έκδοσης πχ 2020.1, 2020.2, 2020.3. Και κάθε υπο-έκδοση έχει δικό της αύξοντα αριθμό με ελάσσονες αλλαγές/διορθώσεις bugs κλπ, πχ 2020.3.37, 2020.3.38 κλπ .

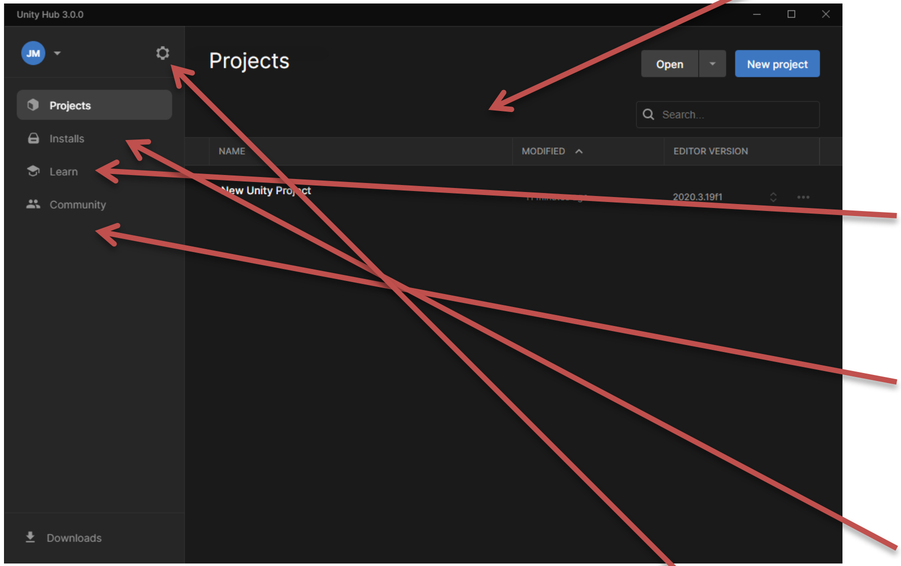
Όταν μια έκδοση «κλείσει» και δε θα υπάρξει άλλη σημαντική υπο-έκδοση , χαρακτηρίζεται σαν LTS (Long Time Support) και θα υποστηρίζεται για κάποια χρόνια από τη Unity με ενημερώσεις/διορθώσεις. Πχ 2020.3 LTS


Get ready for Unity Essentials - U
Get Your Unity Pro Subscription
unity.com/pages/unity-pro-buy-now?ds_rl=1295837&gclid=CjwKCAiAvK2bBhB8EiwAZUbP1Fk_uPaPsj7RAiTV5AHev...
Communication
3D
Movies
Ionio
Programming
DNHost
Προκηρύξεις
EME Λευκάδας
Οικονομικά
Home Lan
Media
Sch.gr
Unity
Products
Solutions
Learning
More
Get started
Create a Unity ID
Sign in
GET STARTED ON UNITY PRO TODAY
Put our ecosystem of game creation tools, support, and community in your team's hands.
Get Unity Pro

Δημιουργούμε account στο site του Unity .

Το account μας είναι σημαντικό καθώς απαιτείται για την εγκατάσταση του Unity. Το εγκατεστημένο Unity που έχουμε στον υπολογιστή μας συνδέεται με το account μας και προσαρμόζεται στην άδεια χρήσης που έχουμε.

Επιπλέον ό,τι αγορές κάνουμε από το Market Store του Unity , συνδέονται με το account μας και μπορούμε να τις χρησιμοποιήσουμε (per seat licence).



Projects tab
In Unity, you will work in multiple projects, just like you work in multiple documents using office applications, or multiple images using graphics software. The **Projects tab** is where you'll create and import new projects and manage existing ones.

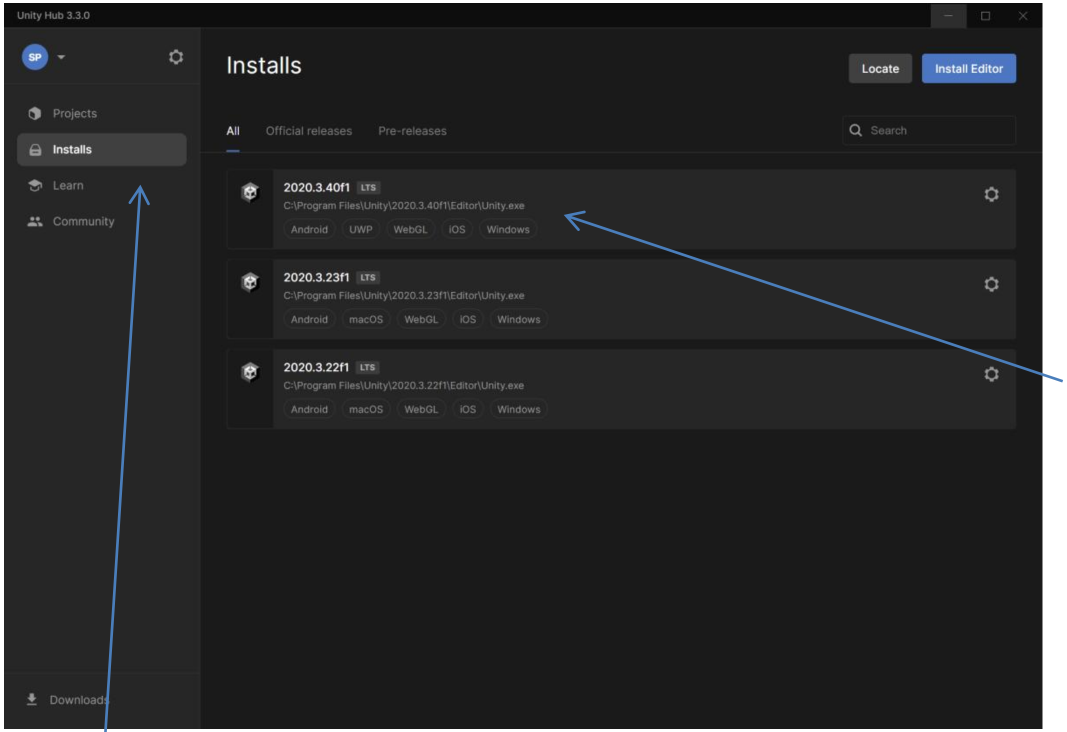
Learn tab
The **Learn tab** is your instant connection to resources for learning Unity. Check the Learn tab for featured learning experiences and tutorials on specific skills.

Community tab
The **Community tab** is a quick reference resource that lists various places you can engage and connect with the wider Unity community.

Installs tab
You'll be installing new versions of Unity as the engine evolves. The **Installs tab** is where you'll manage and configure these installs in the Hub.

Hub preferences and account settings
There are two additional controls on the Hub's main screen:
1. Selecting the **settings (gear icon)** opens your **Preference settings** for the Unity Hub.
2. Selecting **your initials** opens an account menu for your Unity ID.

Αφού δημιουργήσουμε account στο site του Unity κατεβάζουμε πρώτα το Unity HUB. Είναι το «κέντρο ελέγχου» του Unity απ’ όπου διαχειριζόμαστε τις εκδόσεις που έχουμε εγκαταστήσει και τα Porject μας.



2020.3.40f1 LTS
C:\Program Files\Unity\2020.3.40f1\Editor\Unity.exe
Android UWP WebGL iOS Windows

2020.3.23f1 LTS
C:\Program Files\Unity\2020.3.23f1\Editor\Unity.exe
Android macOS WebGL iOS Windows

2020.3.22f1 LTS
C:\Program Files\Unity\2020.3.22f1\Editor\Unity.exe
Android macOS WebGL iOS Windows

Το Unity έχει πολλές εκδόσεις. Κάθε έκδοση χαρακτηρίζεται από τον αριθμό του έτους (2019, 2020, 2021) και τον αύξοντα αριθμό υπο-έκδοσης πχ 2020.1, 2020.2, 2020.3. Και κάθε υπο-έκδοση έχει δικό της αύξοντα αριθμό με ελάσσονες αλλαγές/διορθώσεις bugs κλπ, πχ 2020.3.37, 2020.3.38 κλπ .

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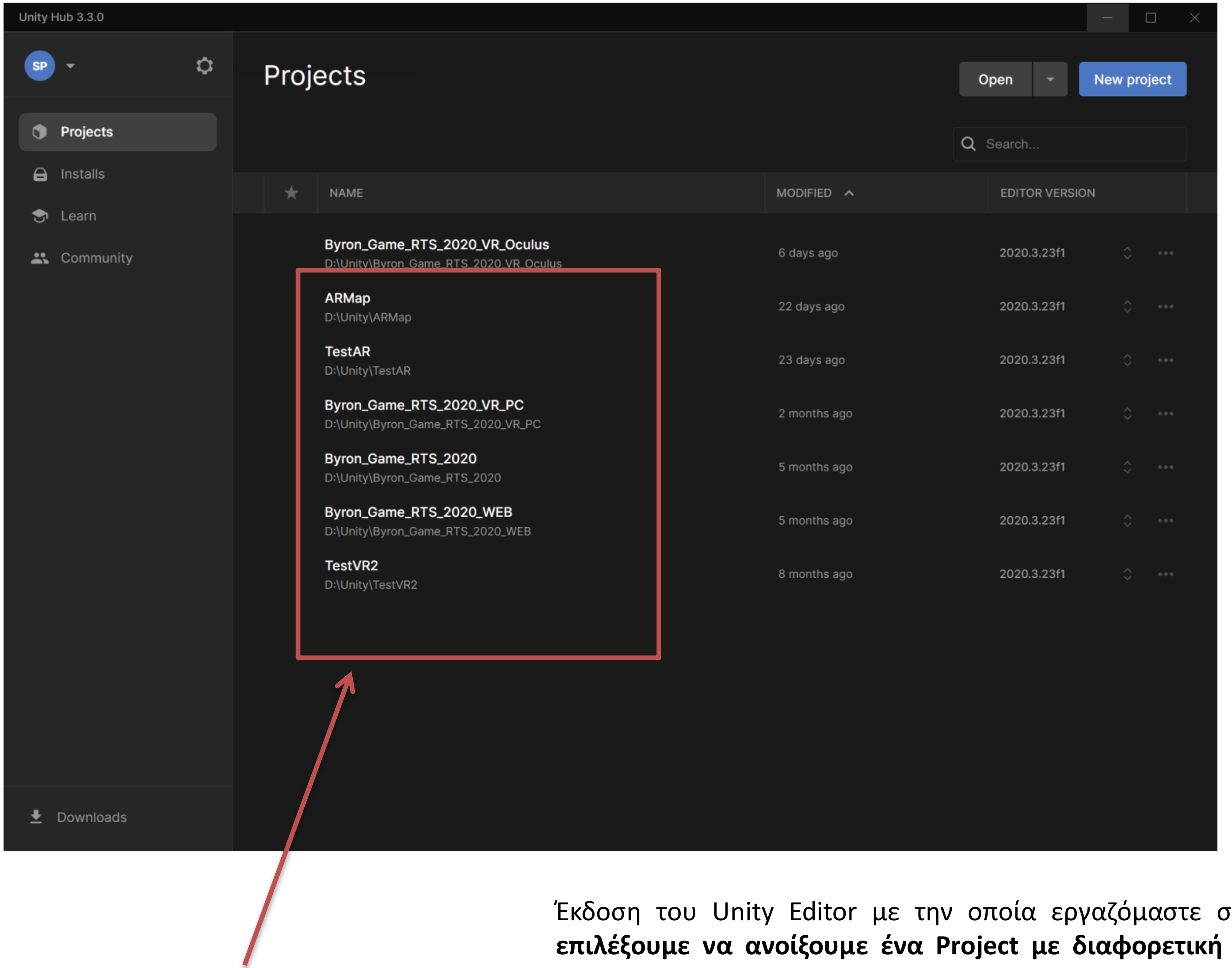
Πατώντας στο «Installs» βλέπουμε τις εκδόσεις του Unity Editor που έχουμε εγκατεστημένες στον υπολογιστή μας. Μπορούμε να έχουμε πολλές εκδόσεις καθώς διαφορετικά μας Projects μπορεί να έχουν φτιαχτεί με διαφορετικές εκδόσεις. Για τα Project μας καλό είναι να χρησιμοποιούμε LTS εκδόσεις του Unity και την πιο πρόσφατη έκδοση που υποστηρίζει τα χαρακτηριστικά του Project μας και τυχόν SKDs που θέλουμε να χρησιμοποιήσουμε

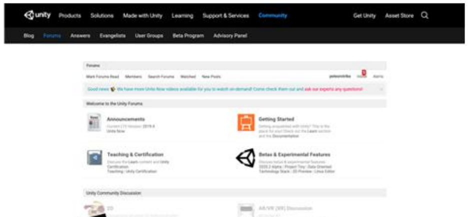
Πατώντας στο «projects» βλέπουμε τη λίστα με τα Porject μας. Κάθε Project έχει το δικό του folder στο σκληρό μας δίσκο.



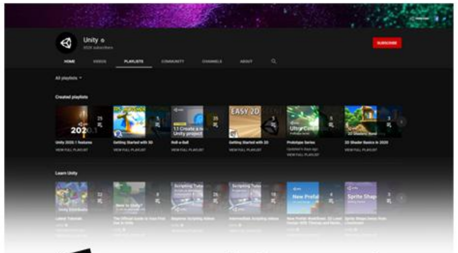
★	NAME	MODIFIED ^	EDITOR VERSION
	Byron_Game_RTS_2020_VR_Oculus D:\Unity\Byron_Game_RTS_2020_VR_Oculus	6 days ago	2020.3.23f1
	ARMap D:\Unity\ARMap	22 days ago	2020.3.23f1
	TestAR D:\Unity\TestAR	23 days ago	2020.3.23f1
	Byron_Game_RTS_2020_VR_PC D:\Unity\Byron_Game_RTS_2020_VR_PC	2 months ago	2020.3.23f1
	Byron_Game_RTS_2020 D:\Unity\Byron_Game_RTS_2020	5 months ago	2020.3.23f1
	Byron_Game_RTS_2020_WEB D:\Unity\Byron_Game_RTS_2020_WEB	5 months ago	2020.3.23f1
	TestVR2 D:\Unity\TestVR2	8 months ago	2020.3.23f1

Λίστα των Projects

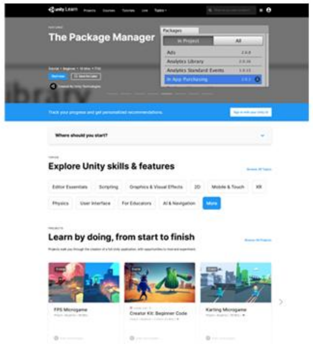
Έκδοση του Unity Editor με την οποία εργαζόμαστε στο Project. **Μπορούμε να επιλέξουμε να ανοίξουμε ένα Project με διαφορετική έκδοση από αυτή που το δουλεύαμε (πχ για να το αναβαθμίσουμε σε νεότερη έκδοση του Unity Editor). Χρειάζεται όμως πολύ προσοχή καθώς το Unity θα μετατρέψει τα στοιχεία του Project μας στη νέα έκδοση και κάποια πράγματα μπορεί να μη δουλεύουν. ΠΑΝΤΟΤΕ παίρνουμε ένα backup το folder του Project μας πριν αλλάξουμε έκδοση Unity Editor στο Project ώστε αν χρειαστεί να μπορούμε να το επαναφέρουμε.**



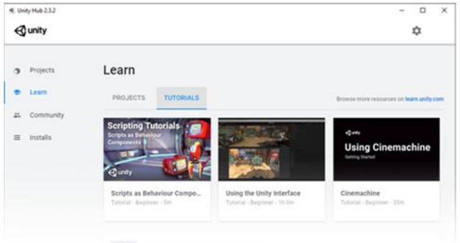
unity Forums



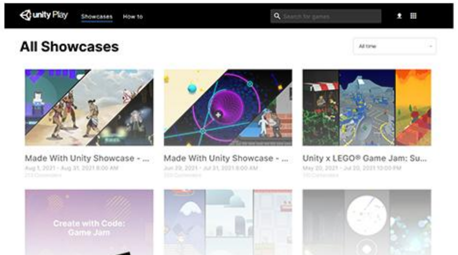
unity Youtube


The Package Manager
Explore Unity skills & features
Learn by doing, from start to finish
FPS Microgame
Creator Kit: Beginner Code
Karting Microgame

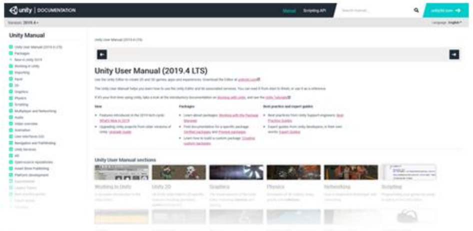
unity Learn



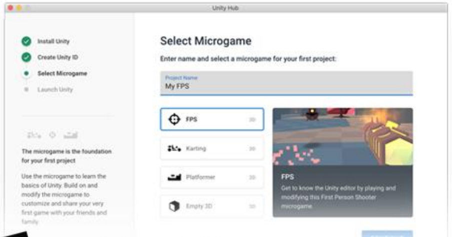
unity Hub


unity Play
Showcases
How to
All Showcases
Made With Unity Showcase - ...
Made With Unity Showcase - ...
Unity x LEGO® Game Jam: Su...
Create with Code: Game Jam

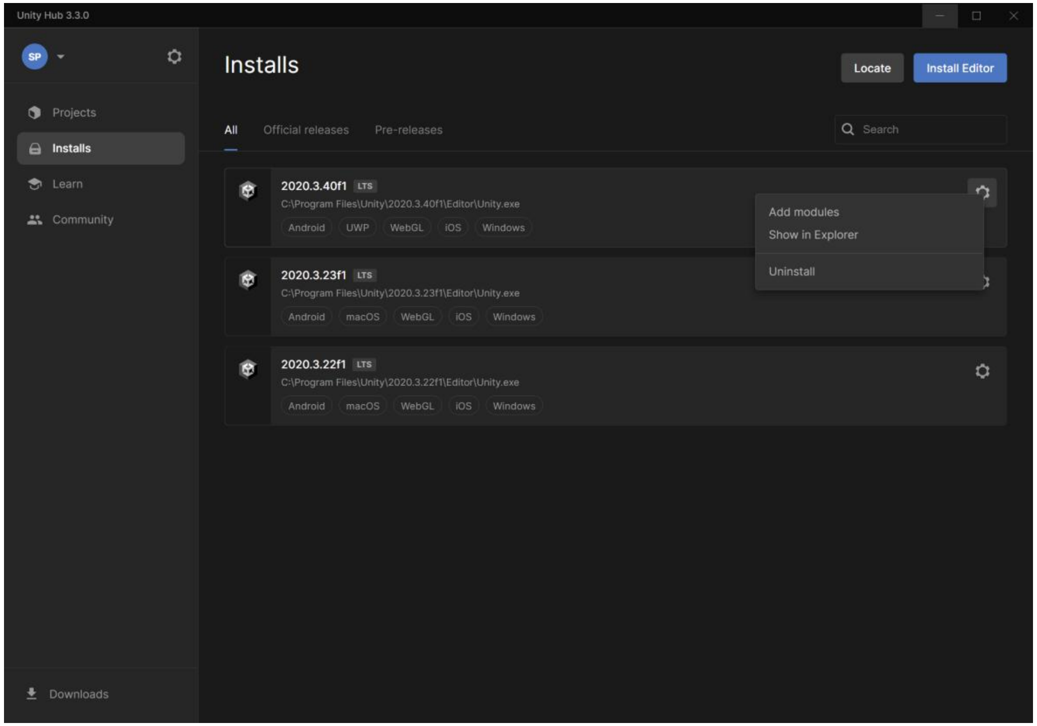
unity Play



unity Documentation



unity Microgames

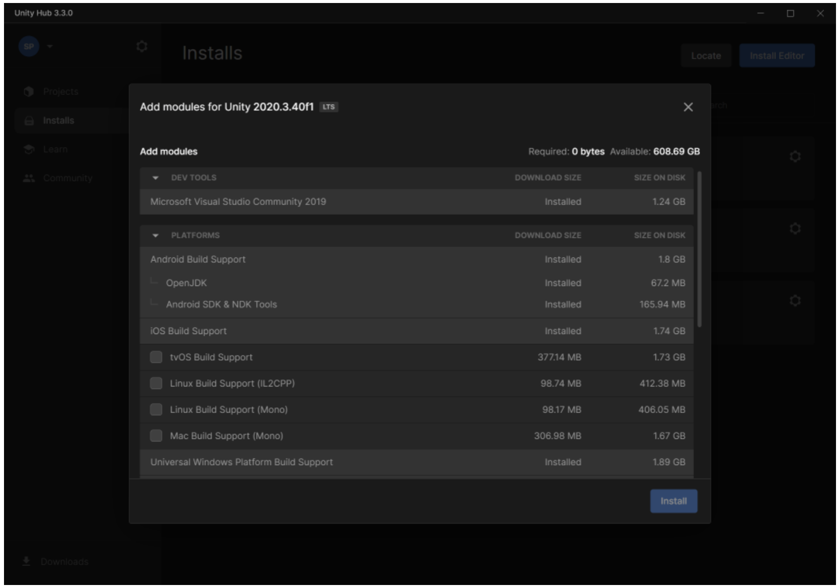


2020.3.40f1 LTS
C:\Program Files\Unity\2020.3.40f1\Editor\Unity.exe
Android UWP WebGL iOS Windows

2020.3.23f1 LTS
C:\Program Files\Unity\2020.3.23f1\Editor\Unity.exe
Android macOS WebGL iOS Windows

2020.3.22f1 LTS
C:\Program Files\Unity\2020.3.22f1\Editor\Unity.exe
Android macOS WebGL iOS Windows

Μπορούμε σε μια υπάρχουσα εγκατάσταση να προσθέτουμε Modules που δεν είχαμε επιλέξει στην αρχική εγκατάσταση (πχ υποστήριξη Android)



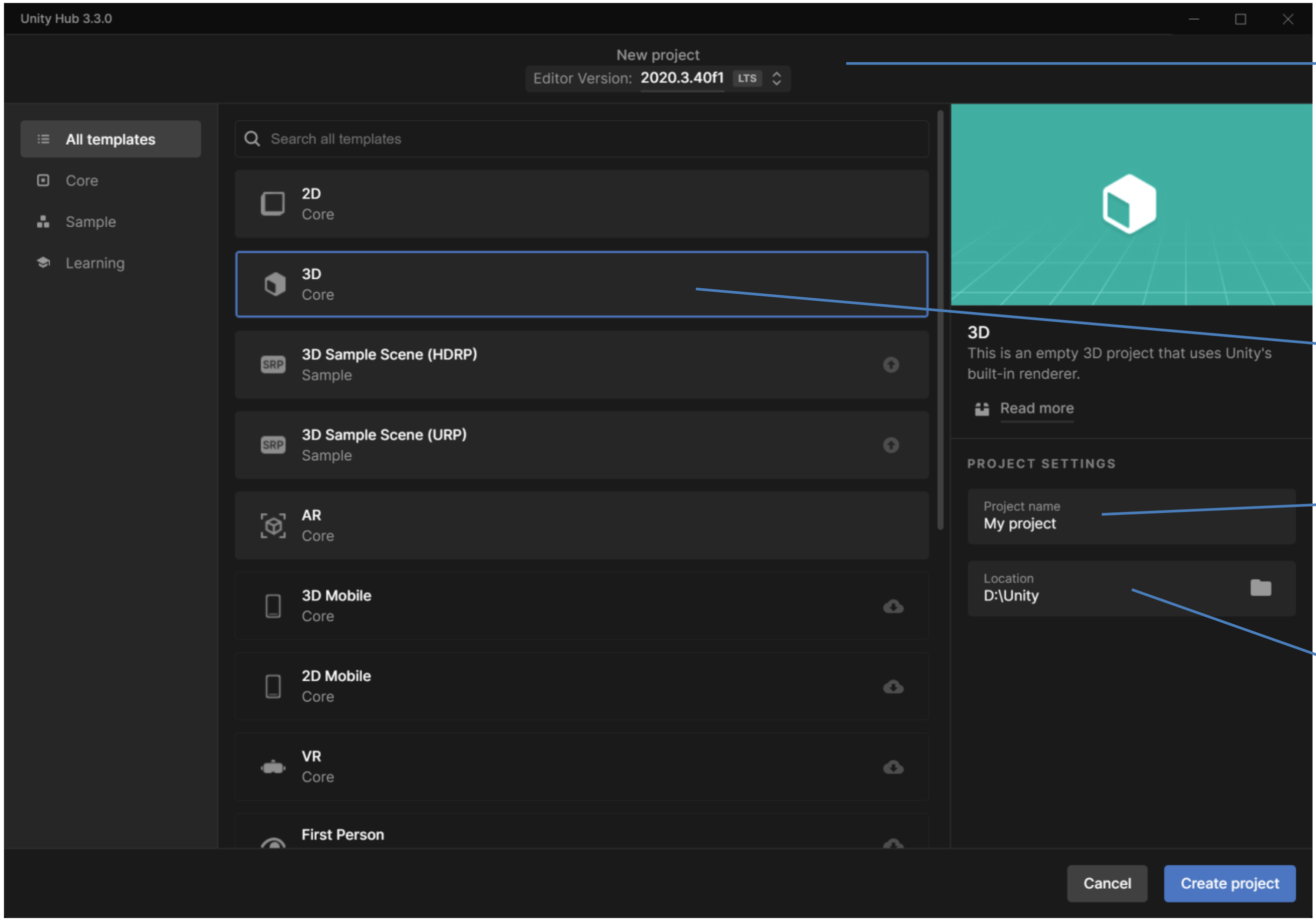
Add modules for Unity 2020.3.40f1 LTS

Add modules   Required: **0 bytes** Available: **608.69 GB**

DEV TOOLS	DOWNLOAD SIZE	SIZE ON DISK
Microsoft Visual Studio Community 2019	Installed	1.24 GB

PLATFORMS	DOWNLOAD SIZE	SIZE ON DISK
Android Build Support	Installed	1.8 GB
OpenJDK	Installed	67.2 MB
Android SDK & NDK Tools	Installed	165.94 MB
iOS Build Support	Installed	1.74 GB
□ tvOS Build Support	377.14 MB	1.73 GB
□ Linux Build Support (IL2CPP)	98.74 MB	412.38 MB
□ Linux Build Support (Mono)	98.17 MB	406.05 MB
□ Mac Build Support (Mono)	306.98 MB	1.67 GB
Universal Windows Platform Build Support	Installed	1.89 GB

Ξεκινώντας ένα **νέο Project** το Unity HUB μας προτείνει μια σειρά από **Templates** που μπορούμε να χρησιμοποιήσουμε για να φτιάξουμε τη βάση του Project. Ανάλογα με το είδος του Porject διαλέγουμε το πιο συναφές template ώστε να φτιαχτεί ένα νέο Project με βασική λειτουργικότητα που θα χρειαστεί στο είδος της εφαρμογής που αναπτύσσουμε


Unity Hub 3.3.0

New project

Editor Version: 2020.3.40f1 LTS

3D

This is an empty 3D project that uses Unity's built-in renderer.

PROJECT SETTINGS

Project name: My project

Location: D:\Unity

Έκδοση του Unity Editor που θα χρησιμοποιηθεί

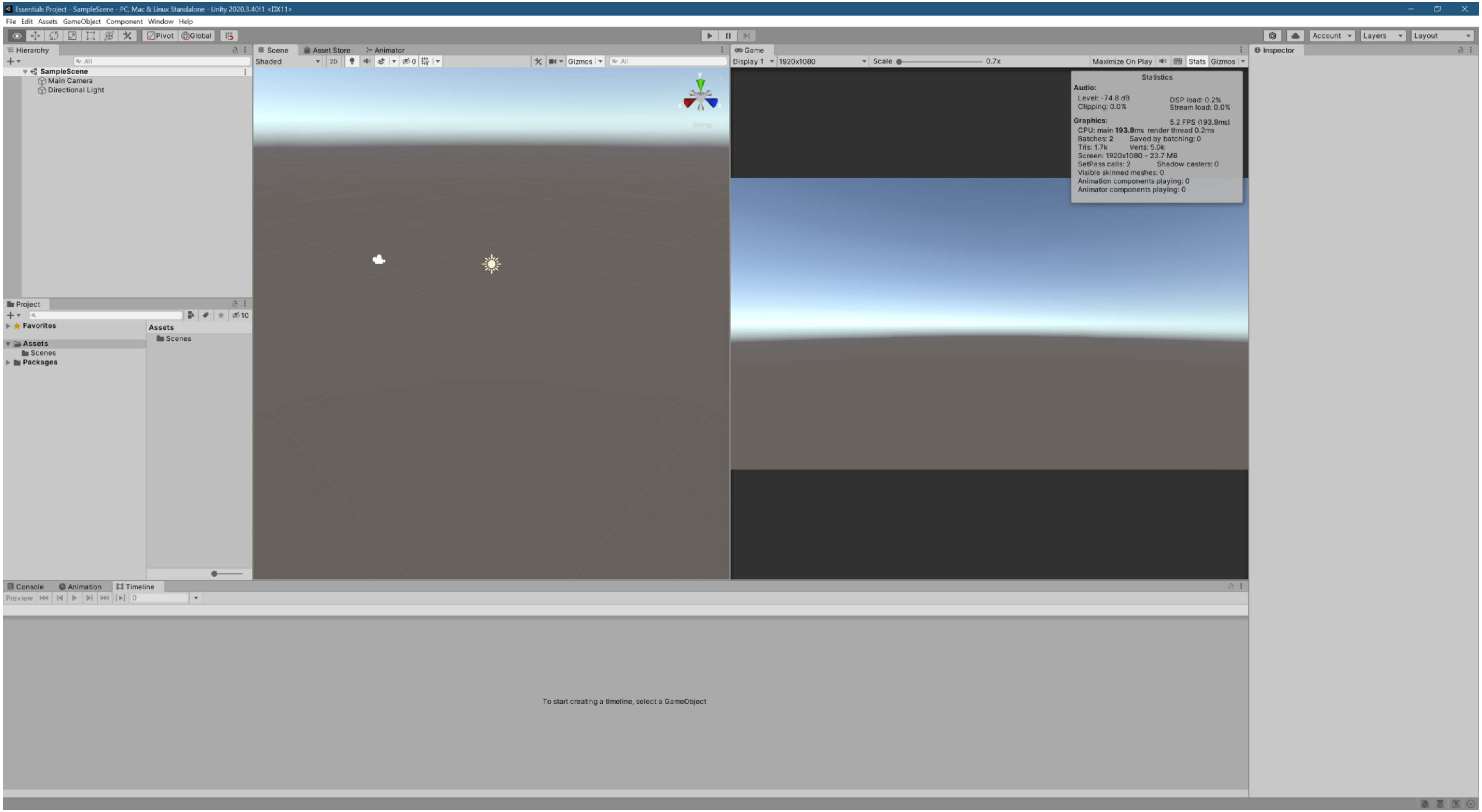
Template για το βασικό κορμό της εφαρμογής

Όνομα του Porject

Folder στο οποίο θα δημιουργηθεί το subfolder του Porject

Templates are “starter” Unity projects in various formats, with preselected settings and feature sets based on common best practices. **Some templates even include sample projects and tutorials, such as the Microgame templates** you might have encountered the first time you installed Unity. **Each version of Unity has its set of templates.**

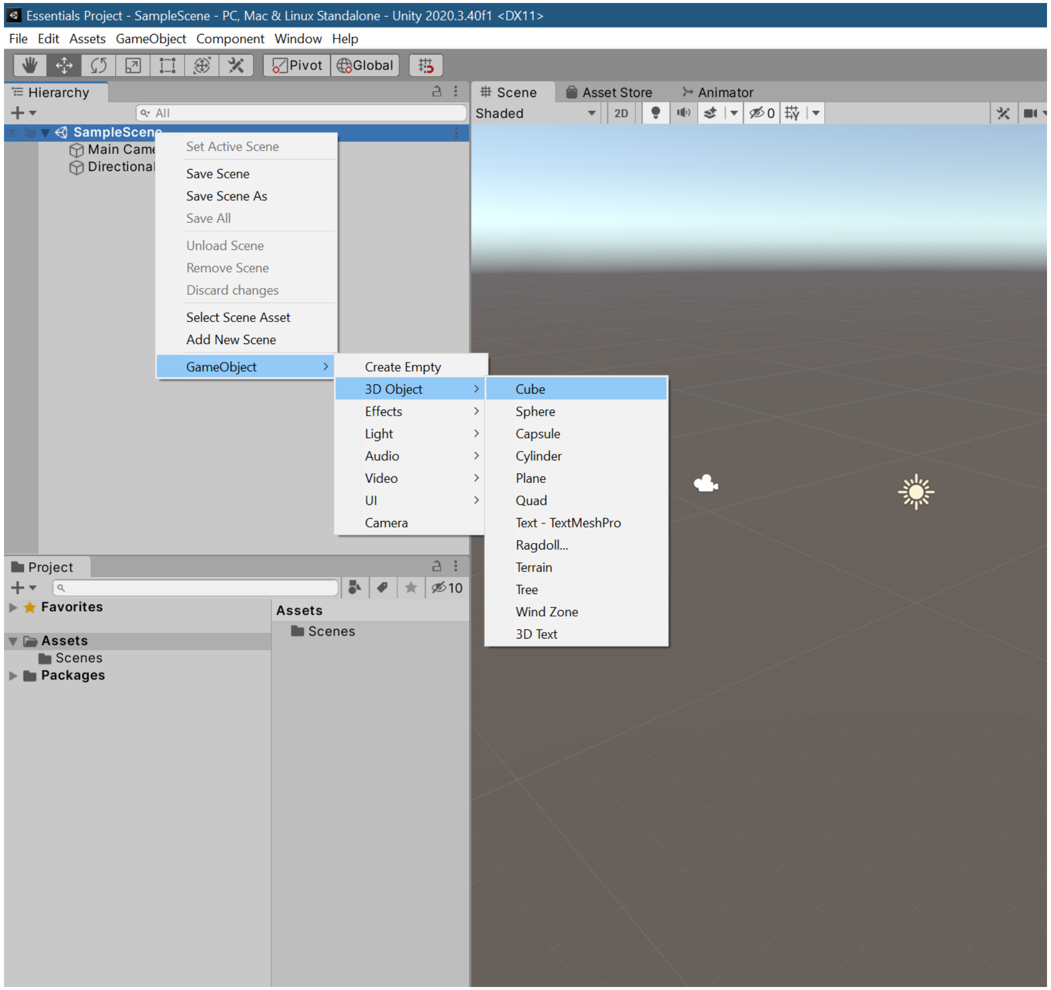
Όταν φτιαχτεί το νέο Porject ανοίγει το Unity Editor. Η Διάταξη των παραθύρων μπορεί να διαμορφωθεί από τον χρήστη



```
Statistics
Audio:
  Level: -74.8 dB                 DSP load: 0.2%
  Clipping: 0.0%                  Stream load: 0.0%
Graphics:                         5.2 FPS (193.9ms)
  CPU: main 193.9ms  render thread 0.2ms
  Batches: 2       Saved by batching: 0
  Tris: 1.7k       Verts: 5.0k
  Screen: 1920x1080 - 23.7 MB
  SetPass calls: 2          Shadow casters: 0
  Visible skinned meshes: 0
  Animation components playing: 0
  Animator components playing: 0
```

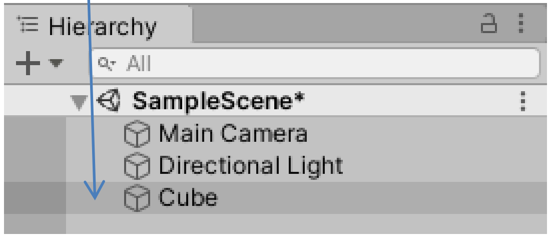
Tutorial για την εξοικείωση με τον Editor

https://learn.unity.com/tutorial/explore-the-unity-editor-1#6124ecdcedbc2a54df07500f

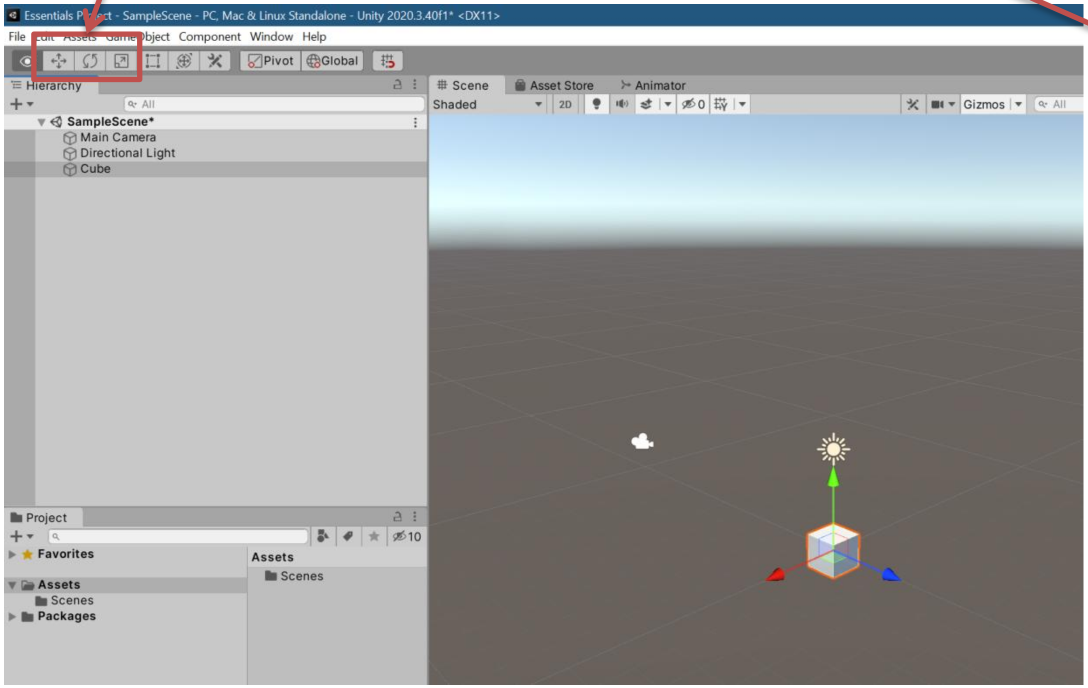


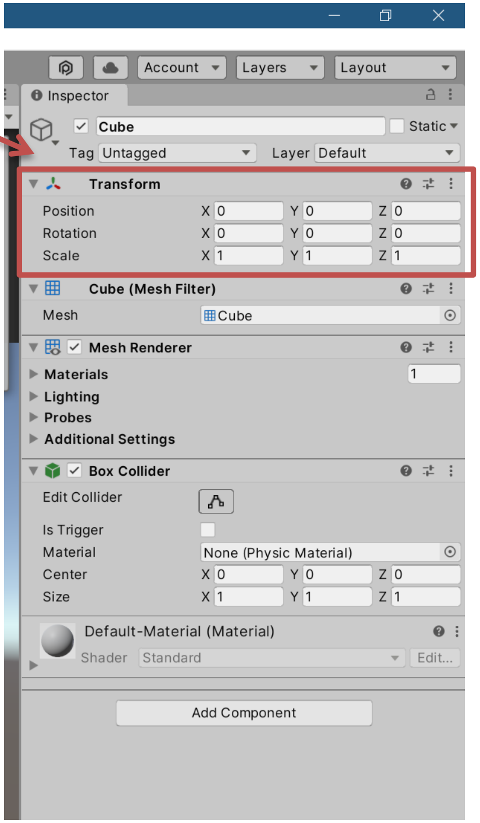
To create a cube primitive in the Scene, right-click an empty section in the Hierarchy and select **3D Object** > **Cube**.

The GameObject named Cube now appears in the Hierarchy, and a Cube appears in the Scene view.



Με τα εργαλεία Move, Rotate και Scale Μπορούμε να αλλάζουμε τη θέση , την περιστροφή και το μέγεθος του αντικειμένου. Το ίδιο μπορούμε να κάνουμε δίνοντας τιμές στα αντίστοιχα properties του αντικειμένου (Transform Component)





☑ Cube ☐ Static
Tag Untagged Layer Default

Transform

Position	X 0	Y 0	Z 0
Rotation	X 0	Y 0	Z 0
Scale	X 1	Y 1	Z 1

Cube (Mesh Filter)
Mesh Cube

☑ Mesh Renderer
Materials 1
Lighting
Probes
Additional Settings

☑ Box Collider
Edit Collider
Is Trigger ☐
Material None (Physic Material)

Center	X 0	Y 0	Z 0
Size	X 1	Y 1	Z 1

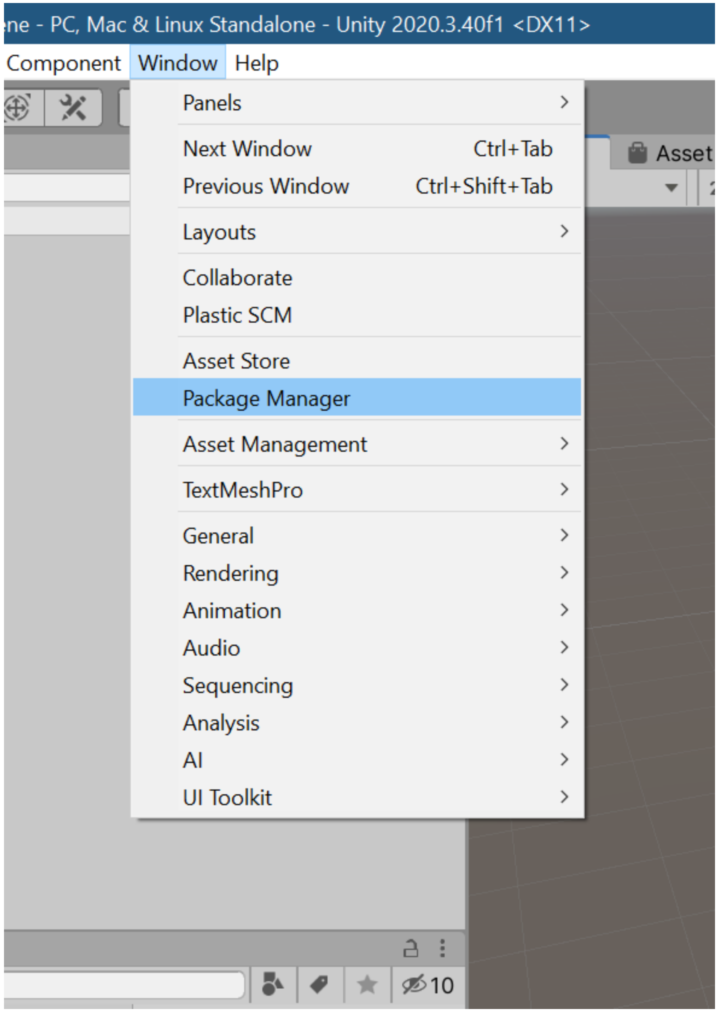
Default-Material (Material)
Shader Standard Edit...

Packages are small collections of Unity features or assets that help you do different things in your projects. This includes both:

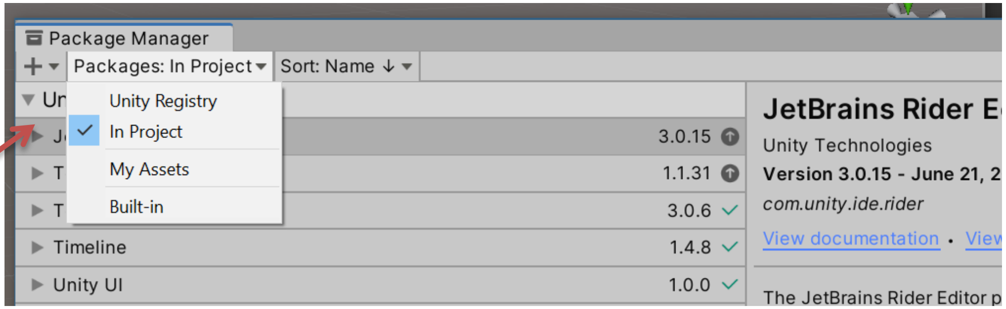
- Core features of Unity, that are installed by default alongside the Editor
- Additional packages, that you can install in a project when you need them

Packaging different features together reduces the initial download size and time required to install a Unity version, and means that you can customize the Editor to meet the specific needs of your projects.

You can manage the packages in the Unity Editor using the **Package Manager window**. You can also view Asset Store packages you have downloaded or installed there.



Πηγή προέλευσης του Package



Package Manager

＋ ▾ Packages: In Project ▾ Sort: Name ↓ ▾

- Unity Registry
- ✓ In Project
- My Assets
- Built-in

Un	
J	3.0.15
T	1.1.31
T	3.0.6 ✓
Timeline	1.4.8 ✓
Unity UI	1.0.0 ✓

JetBrains Rider E

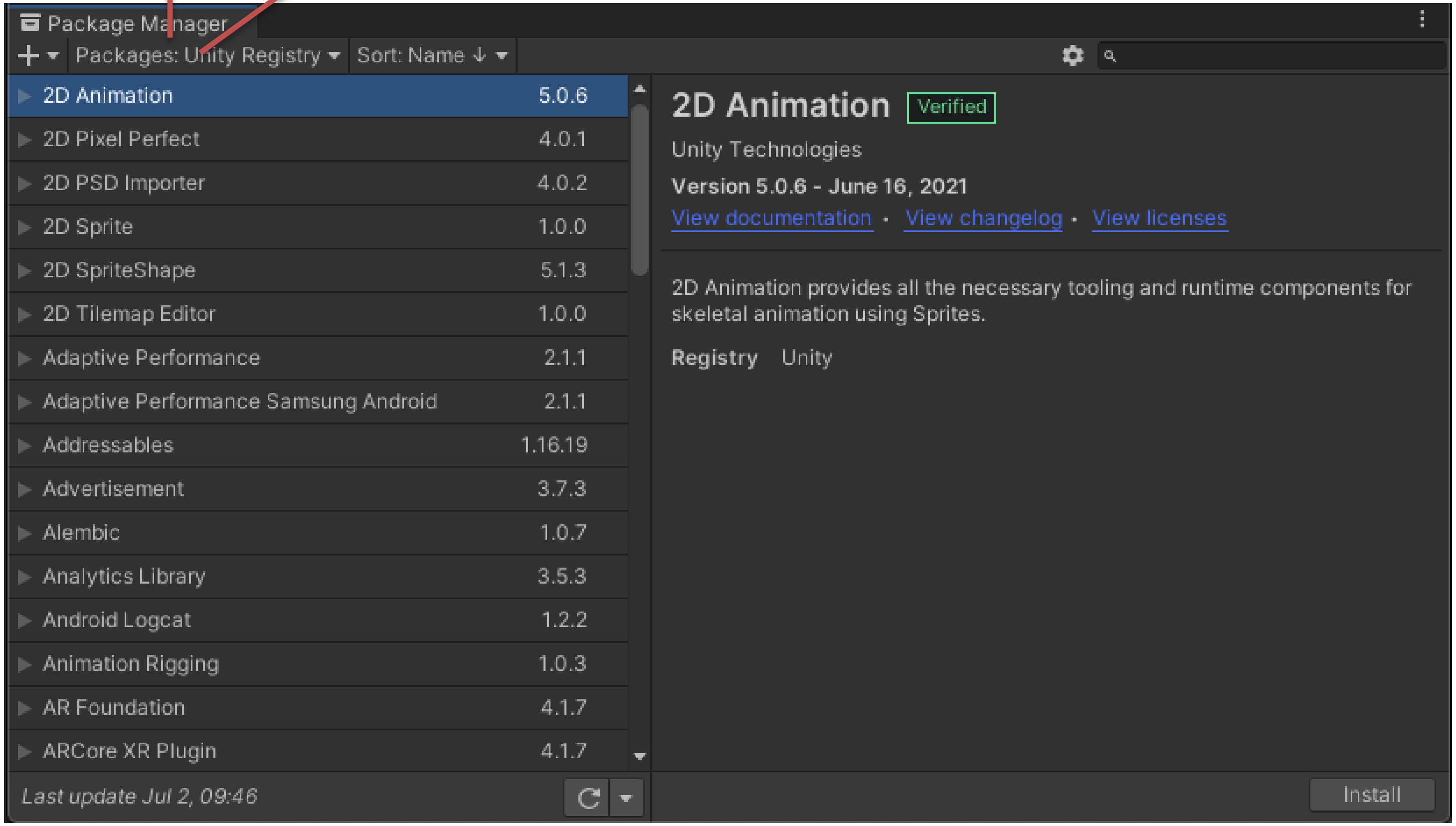
Unity Technologies

Version 3.0.15 - June 21, 2

com.unity.ide.rider

View documentation • View

The JetBrains Rider Editor p



Package Manager

＋ ▾ Packages: Unity Registry ▾ Sort: Name ↓ ▾

2D Animation	5.0.6
2D Pixel Perfect	4.0.1
2D PSD Importer	4.0.2
2D Sprite	1.0.0
2D SpriteShape	5.1.3
2D Tilemap Editor	1.0.0
Adaptive Performance	2.1.1
Adaptive Performance Samsung Android	2.1.1
Addressables	1.16.19
Advertisement	3.7.3
Alembic	1.0.7
Analytics Library	3.5.3
Android Logcat	1.2.2
Animation Rigging	1.0.3
AR Foundation	4.1.7
ARCore XR Plugin	4.1.7

Last update Jul 2, 09:46

2D Animation Verified

Unity Technologies

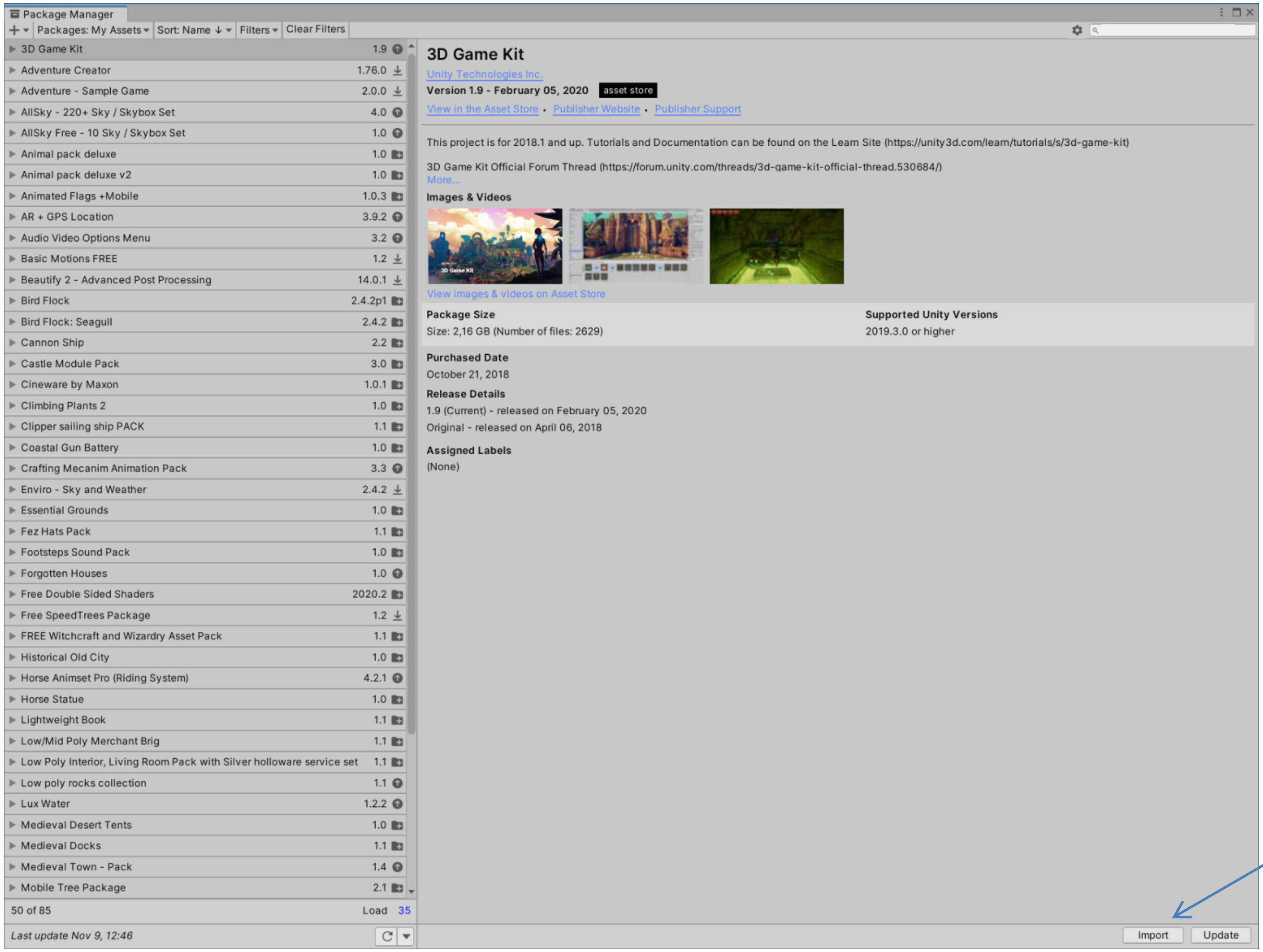
Version 5.0.6 - June 16, 2021

View documentation • View changelog • View licenses

2D Animation provides all the necessary tooling and runtime components for skeletal animation using Sprites.

Registry Unity

Επιλέγοντας «My Assets» Μπορούμε να δούμε και Packages που έχουμε διαθέσιμα από το Unity Asset Store και να τα εισάγουμε στο Project μας.



Packages: My Assets ▾ | Sort: Name ↓ ▾

3D Game Kit	1.9	⬆
Adventure Creator	1.76.0	⤓
Adventure - Sample Game	2.0.0	⤓
AllSky - 220+ Sky / Skybox Set	4.0	⬆
AllSky Free - 10 Sky / Skybox Set	1.0	⬆
Animal pack deluxe	1.0	📁
Animal pack deluxe v2	1.0	📁
Animated Flags +Mobile	1.0.3	📁
AR + GPS Location	3.9.2	⬆
Audio Video Options Menu	3.2	⬆
Basic Motions FREE	1.2	⤓
Beautify 2 - Advanced Post Processing	14.0.1	⤓
Bird Flock	2.4.2p1	📁
Bird Flock: Seagull	2.4.2	📁
Cannon Ship	2.2	📁
Castle Module Pack	3.0	📁
Cineware by Maxon	1.0.1	📁
Climbing Plants 2	1.0	📁
Clipper sailing ship PACK	1.1	📁
Coastal Gun Battery	1.0	📁
Crafting Mecanim Animation Pack	3.3	⬆
Enviro - Sky and Weather	2.4.2	⤓
Essential Grounds	1.0	📁
Fez Hats Pack	1.1	📁
Footsteps Sound Pack	1.0	📁
Forgotten Houses	1.0	⬆
Free Double Sided Shaders	2020.2	📁
Free SpeedTrees Package	1.2	⤓
FREE Witchcraft and Wizardry Asset Pack	1.1	📁
Historical Old City	1.0	📁
Horse Animset Pro (Riding System)	4.2.1	⬆
Horse Statue	1.0	📁
Lightweight Book	1.1	📁
Low/Mid Poly Merchant Brig	1.1	📁
Low Poly Interior, Living Room Pack with Silver holloware service set	1.1	📁
Low poly rocks collection	1.1	⬆
Lux Water	1.2.2	⬆
Medieval Desert Tents	1.0	📁
Medieval Docks	1.1	📁
Medieval Town - Pack	1.4	⬆
Mobile Tree Package	2.1	📁

50 of 85 Load 35

Last update Nov 9, 12:46

3D Game Kit

Unity Technologies Inc.

Version 1.9 - February 05, 2020 asset store

View in the Asset Store • Publisher Website • Publisher Support

This project is for 2018.1 and up. Tutorials and Documentation can be found on the Learn Site (https://unity3d.com/learn/tutorials/s/3d-game-kit)

3D Game Kit Official Forum Thread (https://forum.unity.com/threads/3d-game-kit-official-thread.530684/)
More...

Images & Videos

View images & videos on Asset Store

Package Size
Size: 2,16 GB (Number of files: 2629)

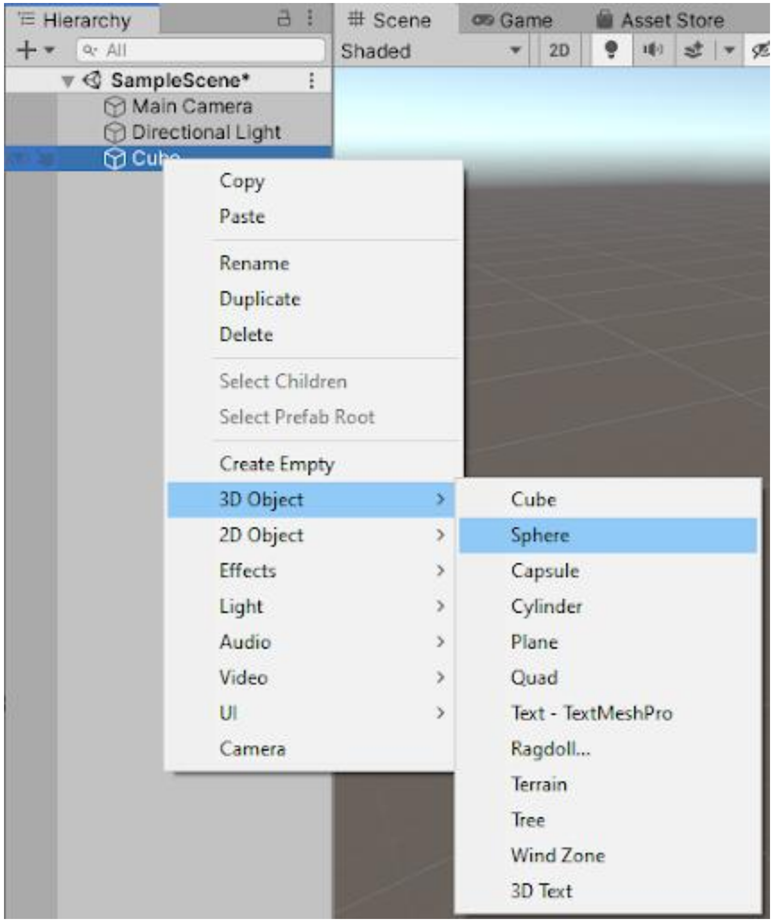
Supported Unity Versions
2019.3.0 or higher

Purchased Date
October 21, 2018

Release Details
1.9 (Current) - released on February 05, 2020
Original - released on April 06, 2018

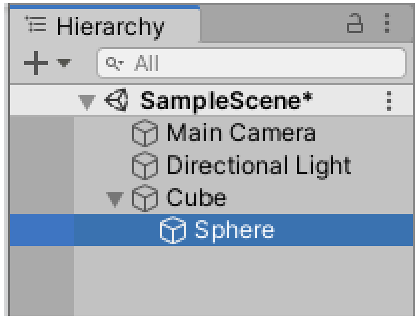
Assigned Labels
(None)

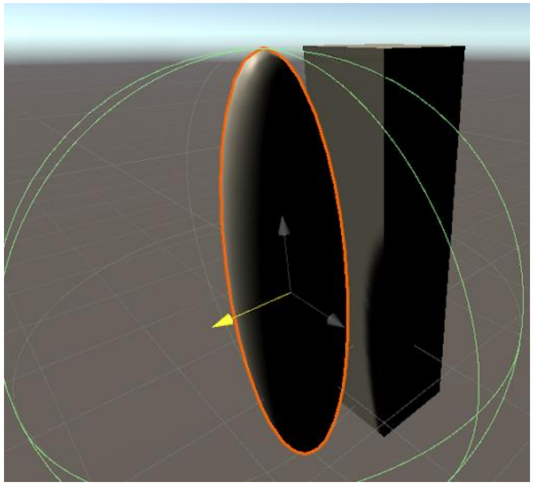
Για κάθε Package έχουμε τη δυνατότητα να το κατεβάσουμε (αν δεν το έχουμε κατεβάσει ποτέ) , να το εισάγουμε στο Project και να το κάνουμε Update.



Μέσα από το Hierarchy μπορούμε να διαχειριζόμαστε τα αντικείμενα της σκηνής.

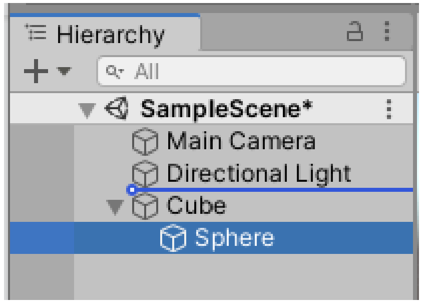
Μπορούμε για παράδειγμα να κατασκευάσουμε μια σφαίρα που να ανήκει στον κύβο που είχαμε πριν προσθέσει



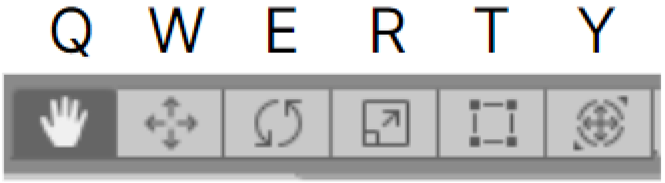


Μπορούμε να μετακινήσουμε τη σφαίρα ώστε να φαίνεται στη σκηνή.

Καθώς η σφαίρα ιεραρχικά ανήκει στον κύβο, μετακινώντας, περιστρέφοντας ή αλλάζοντας μέγεθος στον κύβο , θα ακολουθεί και η σφαίρα

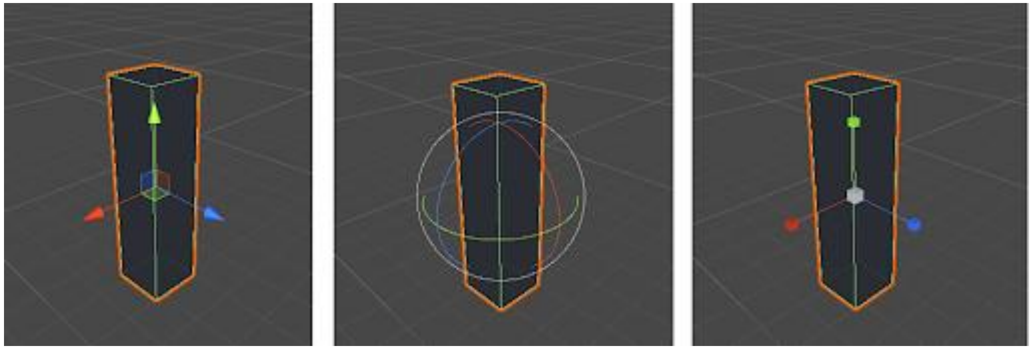


Αν θέλουμε να βγάλουμε τη σφαίρα εκτός κύβου στην ιεραρχία μπορούμε να την κάνουμε drag στο Hierarchy παράθυρο

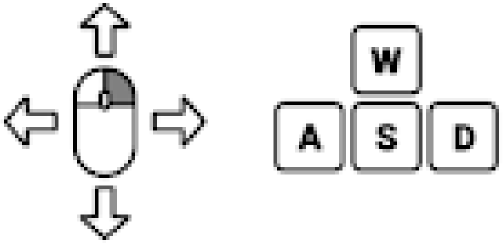


Q: Hand tool, to pan your view
W: Move tool, to select and change position
E: Rotate tool, to select and rotate
R: Scale tool, to select and change size
T: Rect Transform tool, to scale in 2D
Y: Transform tool, to move, scale, and rotate with one Gizmo

For each of the transform tools, a Gizmo appears that allows you to manipulate the GameObject along each specific axis. As you manipulate these controls, the values in the Transform Component change accordingly.



Scene view navigation



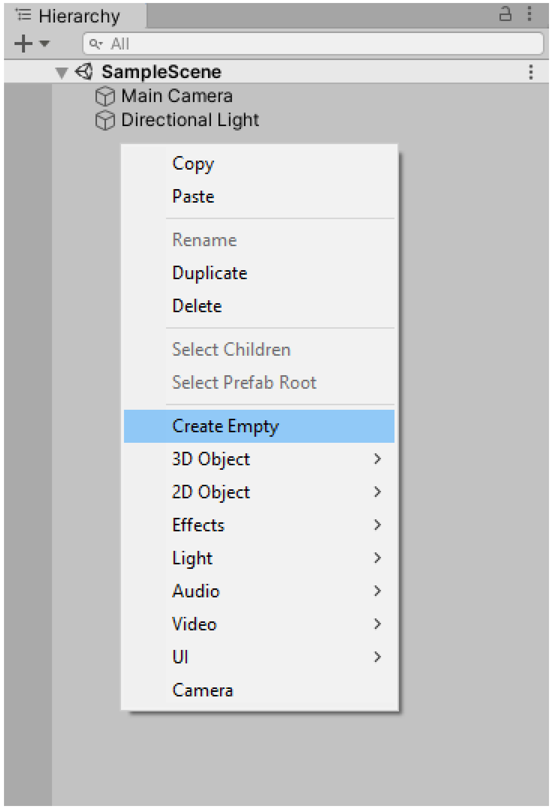
Select a GameObject in the Scene view	Left-click the GameObject
Move the Scene view camera	Middle-click and drag to your desired view
Rotate the Scene view camera	Right-click and drag to your desired view

Useful shortcuts

Tool	Icon	Shortcut	Purpose
Hand Tool	✋	Q	Move your Scene around in the window
Move Tool	✥	W	Select items and move them individually.
Rotate Tool	⟳	E	Select items and rotate them
Scale Tool	⤢	R	Scale your GameObjects up and down
Rect Transform Tool	▣	T	Move, rotate, or scale 2D GameObjects or UI
Rotate, Move or Scale	⊕	Y	Move, rotate, or scale 3D GameObjects

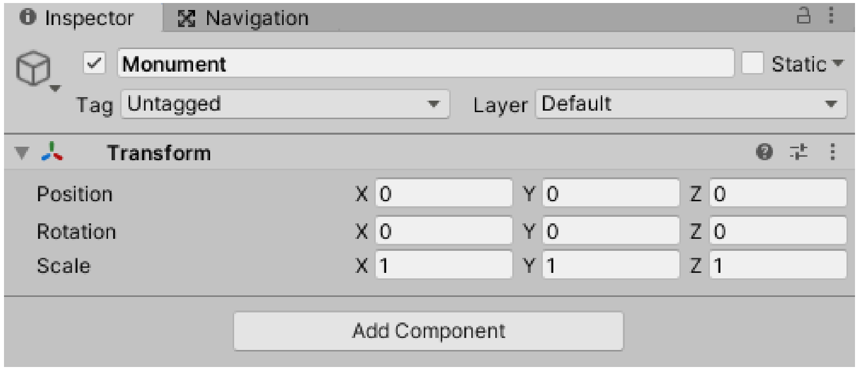
2.Create an empty GameObject

An **empty GameObject** is a placeholder object that can be created in the Hierarchy. It does not have a visible representation in the Scene, and it can act as a container for other GameObjects.



1. Right-click in the Hierarchy and select **Create Empty**.

2. Rename this GameObject to Monument in the Inspector.



Monument

Tag Untagged

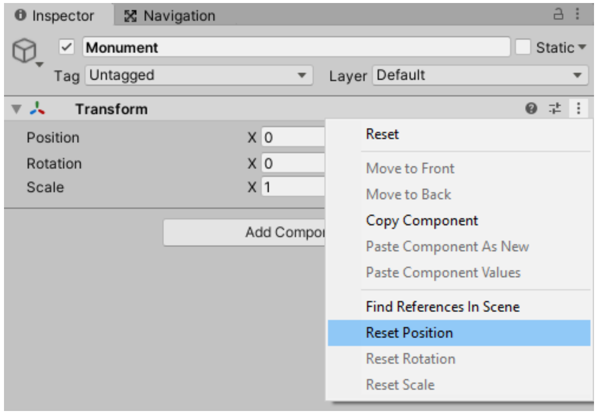
Layer Default

Position X 0 Y 0 Z 0

Rotation X 0 Y 0 Z 0

Scale X 1 Y 1 Z 1

3. Select this new GameObject in the Scene view. In the Inspector, reset the position by selecting the three dots on the right and then selecting **Reset Position**. This sets the position of the center of the GameObject to 0,0,0, aligning it to the center of your Scene.



Monument

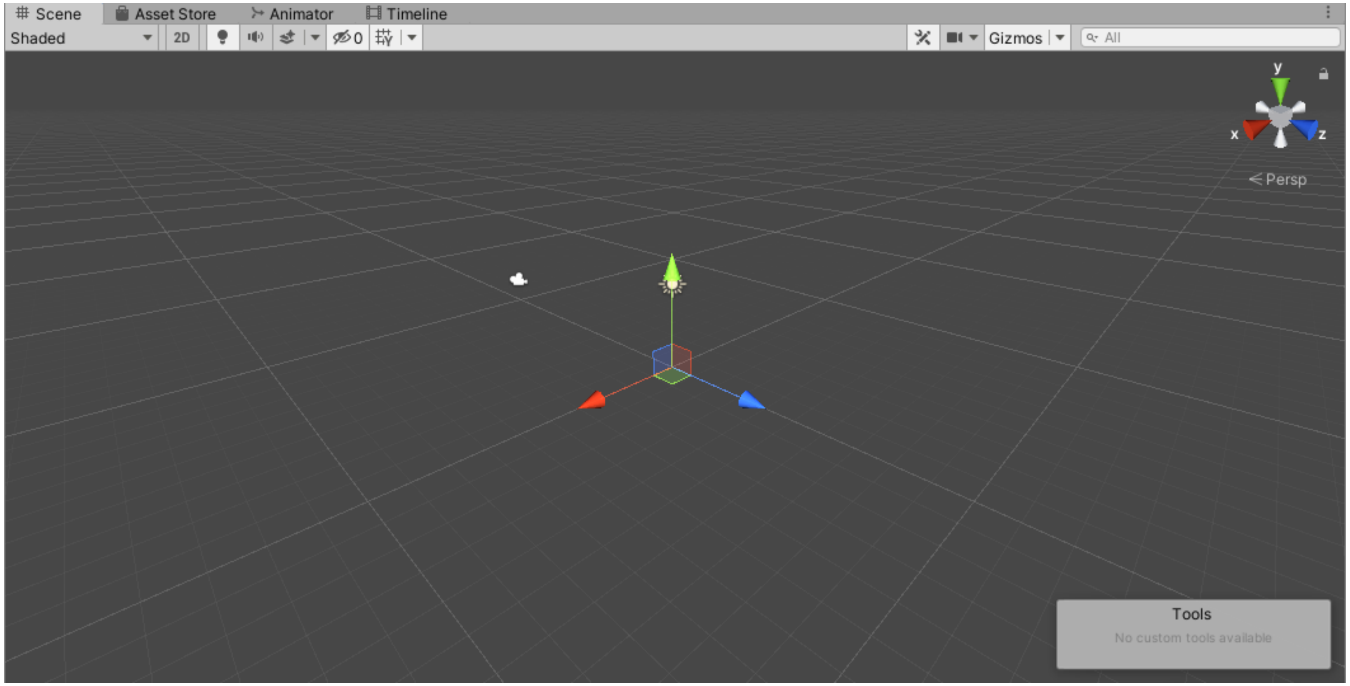
Tag Untagged

Layer Default

Position X 0

Rotation X 0

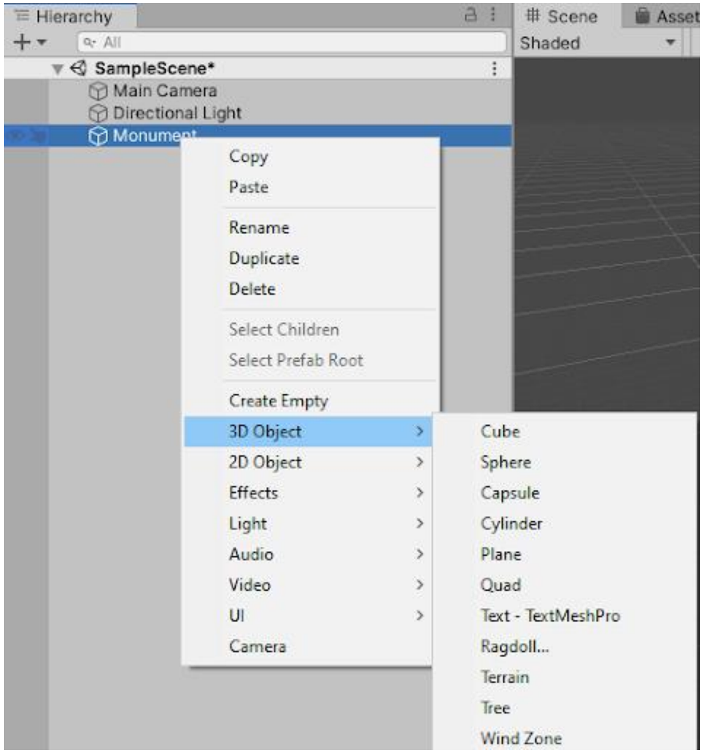
Scale X 1



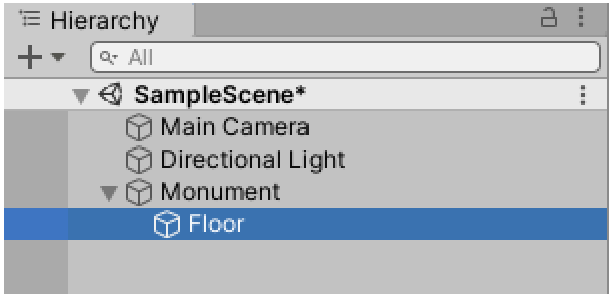
Tools

No custom tools available

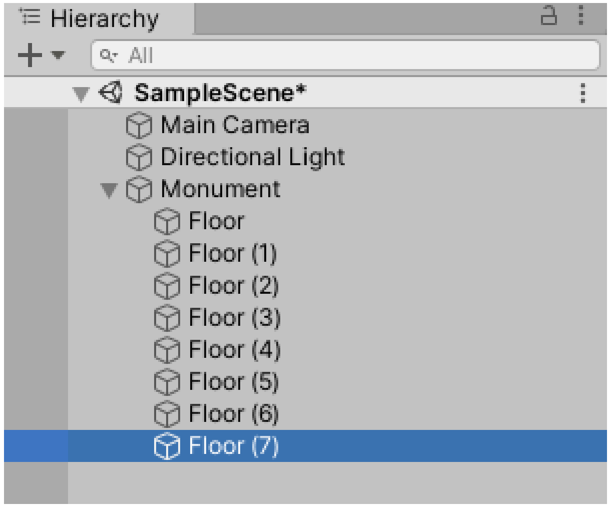
1. In the Hierarchy, right-click the Monument GameObject and select **3D Object > Cube** to create a new cube as a child of Monument.



2. Rename this new GameObject to Floor.



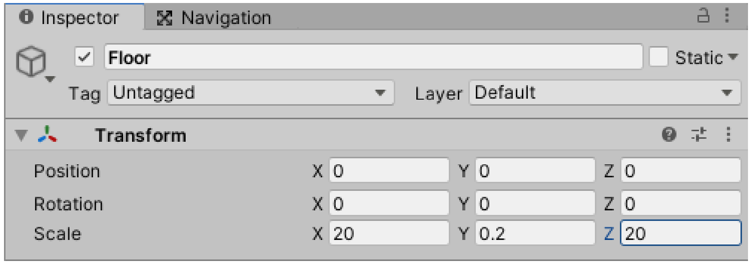
3. Right-click on the Floor GameObject and select **Duplicate**. (Shortcut: select Floor and press Ctrl-D.) Duplicate Floor six more times so that you have the original Floor and seven duplicates, for a total of eight floors that are children of Monument.



3.Create the steps

4.Transform the steps

1. Select the first Floor child object and change the Transform Component values in the Inspector as shown below.



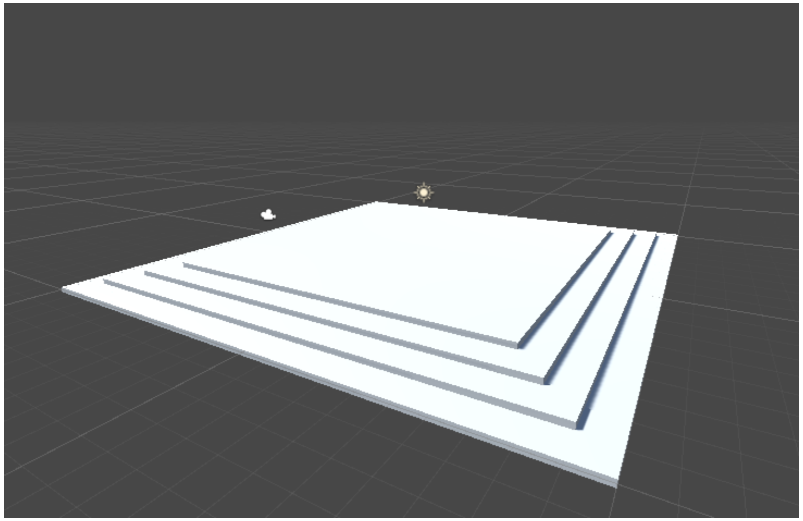
Inspector | Navigation

☑ Floor □ Static

Tag Untagged Layer Default

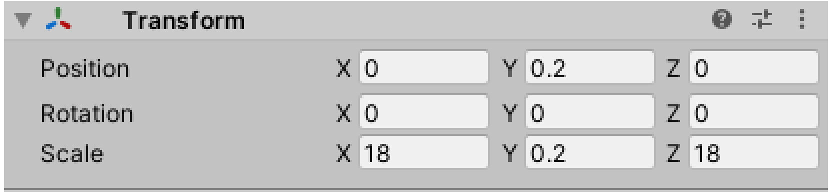
Transform

Position	X 0	Y 0	Z 0
Rotation	X 0	Y 0	Z 0
Scale	X 20	Y 0.2	Z 20



2. Do the same for the rest of the Floor objects using the values indicated below.

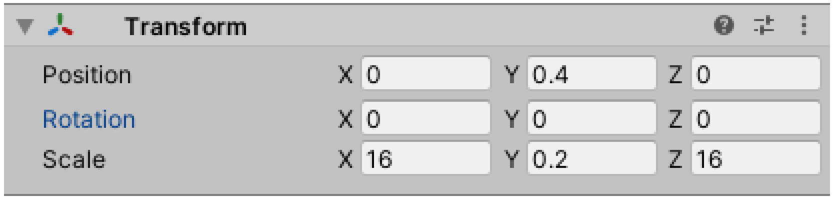
Values for Floor (1) GameObject



Transform

Position	X 0	Y 0.2	Z 0
Rotation	X 0	Y 0	Z 0
Scale	X 18	Y 0.2	Z 18

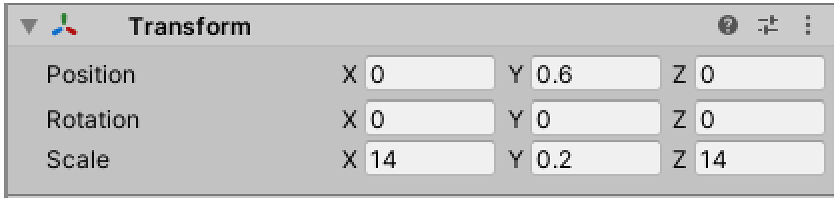
Values for Floor (2) GameObject



Transform

Position	X 0	Y 0.4	Z 0
Rotation	X 0	Y 0	Z 0
Scale	X 16	Y 0.2	Z 16

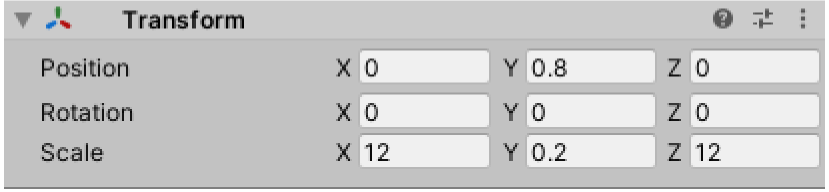
Values for Floor (3) GameObject



Transform

Position	X 0	Y 0.6	Z 0
Rotation	X 0	Y 0	Z 0
Scale	X 14	Y 0.2	Z 14

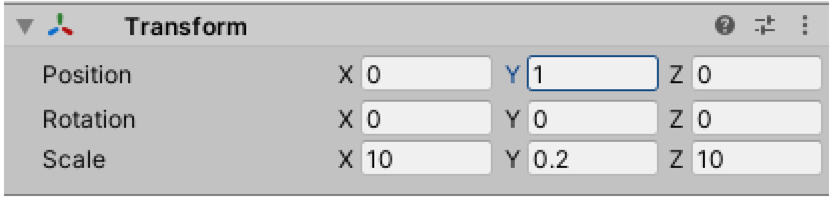
Values for Floor (4) GameObject



Transform

Position	X 0	Y 0.8	Z 0
Rotation	X 0	Y 0	Z 0
Scale	X 12	Y 0.2	Z 12

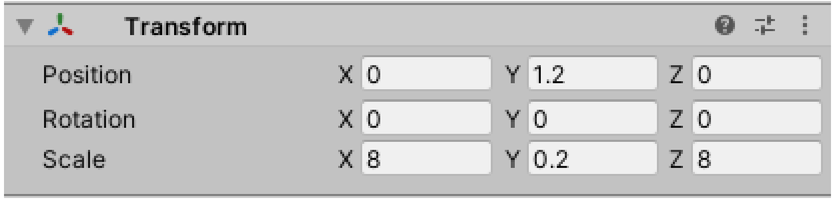
Values for Floor (5) GameObject



Transform

Position	X 0	Y 1	Z 0
Rotation	X 0	Y 0	Z 0
Scale	X 10	Y 0.2	Z 10

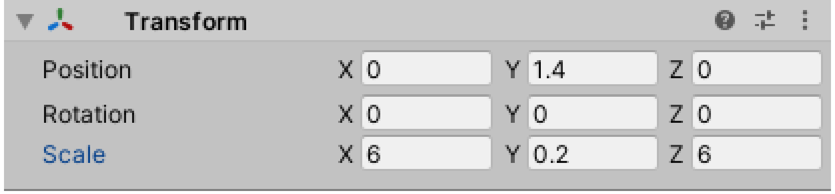
Values for Floor (6) GameObject



Transform

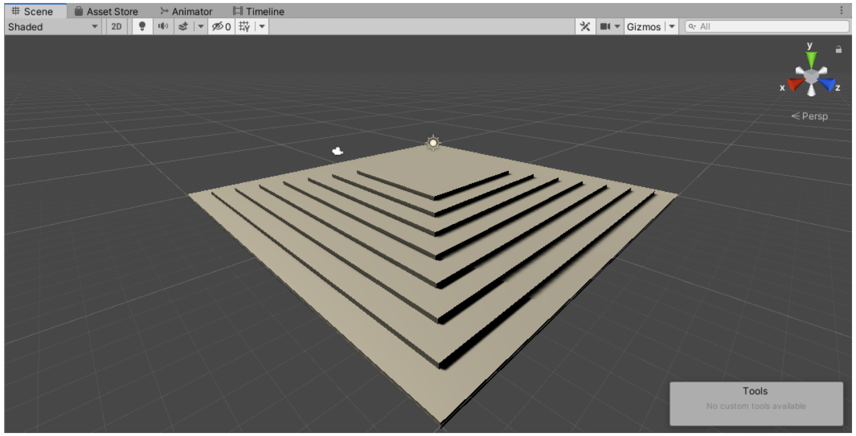
Position	X 0	Y 1.2	Z 0
Rotation	X 0	Y 0	Z 0
Scale	X 8	Y 0.2	Z 8

Values for Floor (7) GameObject



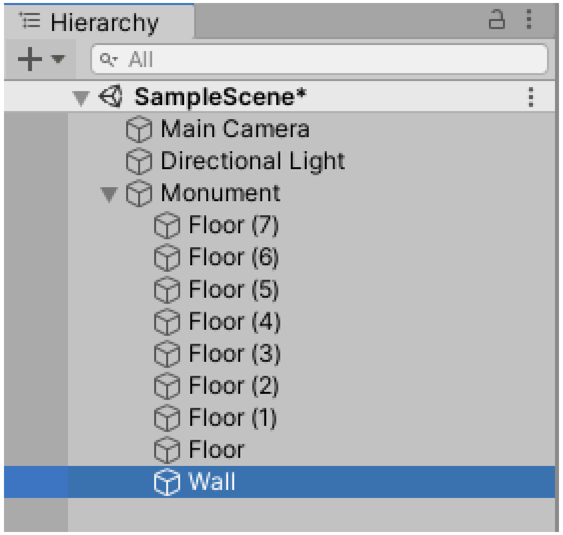
Transform

Position	X 0	Y 1.4	Z 0
Rotation	X 0	Y 0	Z 0
Scale	X 6	Y 0.2	Z 6

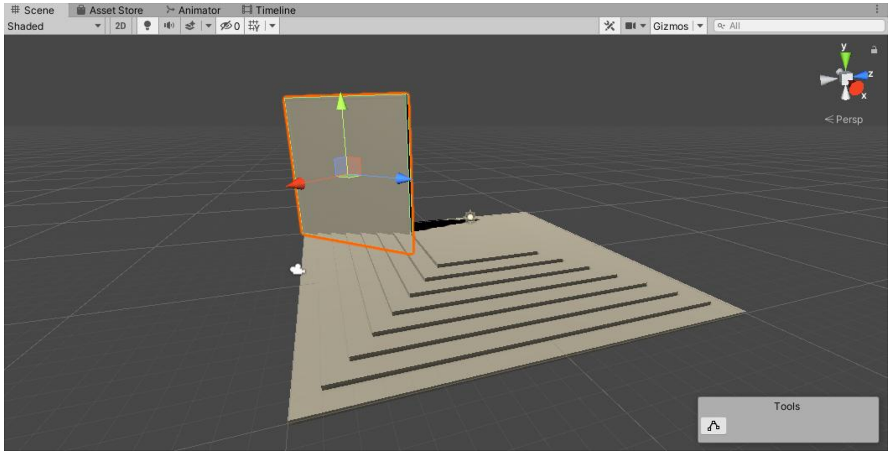


5.Create the walls

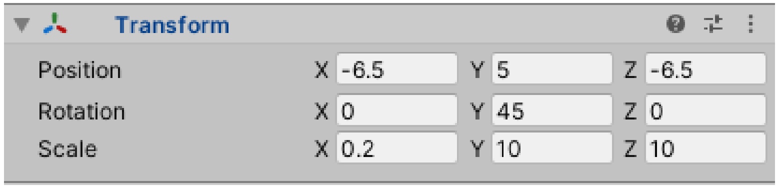
1. Create another Cube primitive as a child of the Monument GameObject and rename it to Wall.



SampleScene*
Main Camera
Directional Light
Monument
Floor (7)
Floor (6)
Floor (5)
Floor (4)
Floor (3)
Floor (2)
Floor (1)
Floor
Wall

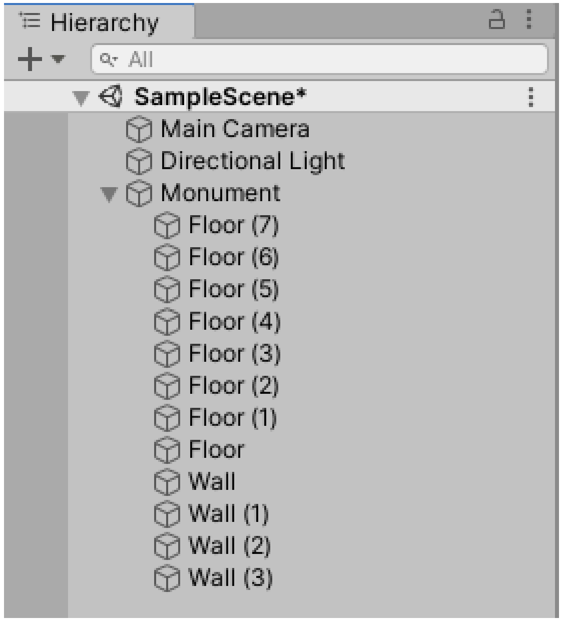


2. Change the values in the Inspector as shown below.

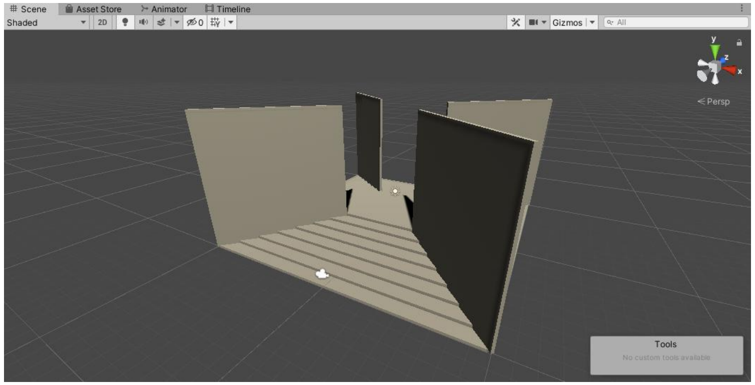


Position	X	-6.5	Y	5	Z	-6.5
Rotation	X	0	Y	45	Z	0
Scale	X	0.2	Y	10	Z	10

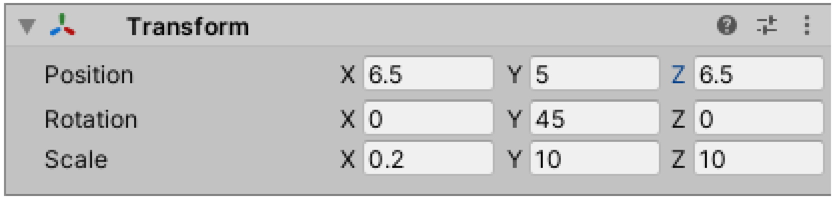
3. Duplicate the wall three times and change the Transform Component values as shown below.



- SampleScene*
  - Main Camera
  - Directional Light
  - Monument
    - Floor (7)
    - Floor (6)
    - Floor (5)
    - Floor (4)
    - Floor (3)
    - Floor (2)
    - Floor (1)
    - Floor
    - Wall
    - Wall (1)
    - Wall (2)
    - Wall (3)



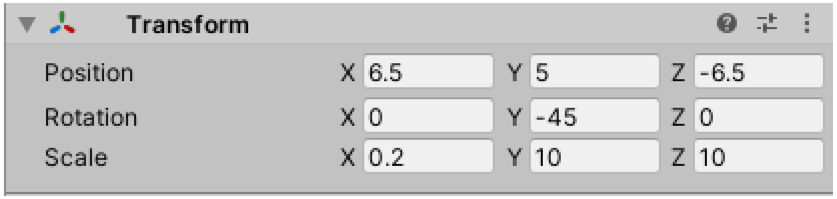
Wall (1) GameObject



Transform

Position	X	6.5	Y	5	Z	6.5
Rotation	X	0	Y	45	Z	0
Scale	X	0.2	Y	10	Z	10

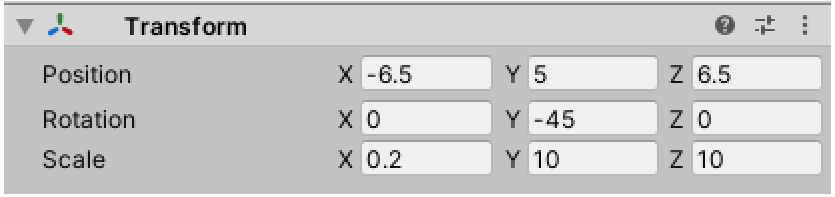
Wall (2) GameObject



Transform

Position	X	6.5	Y	5	Z	-6.5
Rotation	X	0	Y	-45	Z	0
Scale	X	0.2	Y	10	Z	10

Wall (3) GameObject

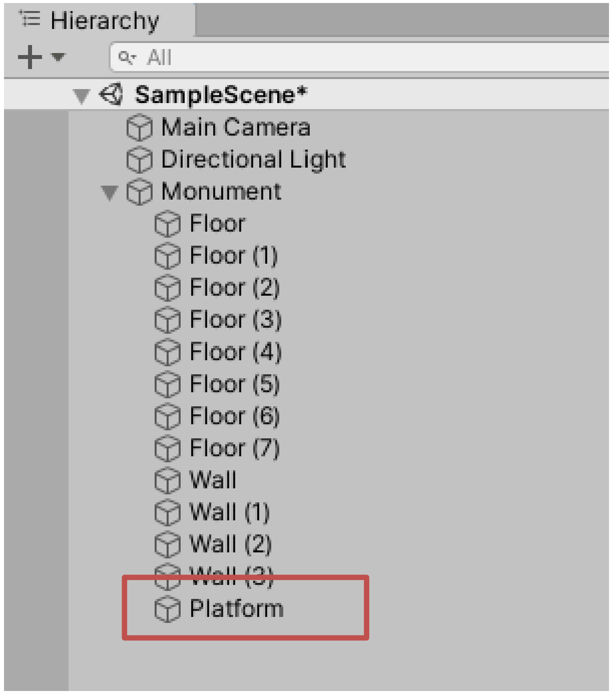


Transform

Position	X	-6.5	Y	5	Z	6.5
Rotation	X	0	Y	-45	Z	0
Scale	X	0.2	Y	10	Z	10

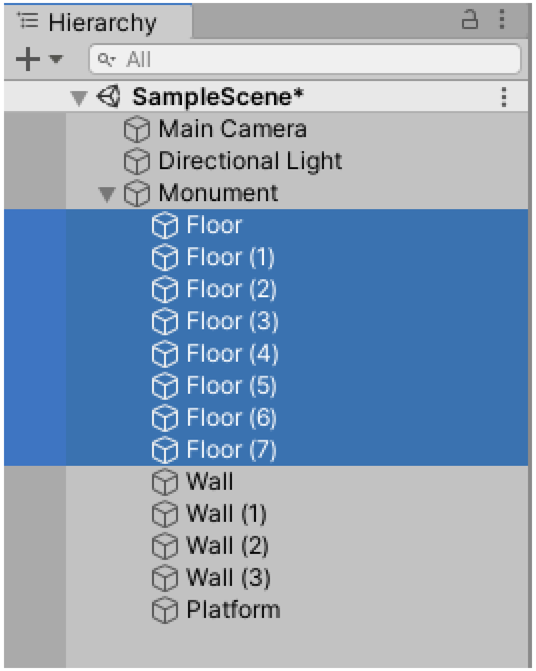
6.Create the roof

1. Create a new empty GameObject as a child of the Monument GameObject and name it Platform.

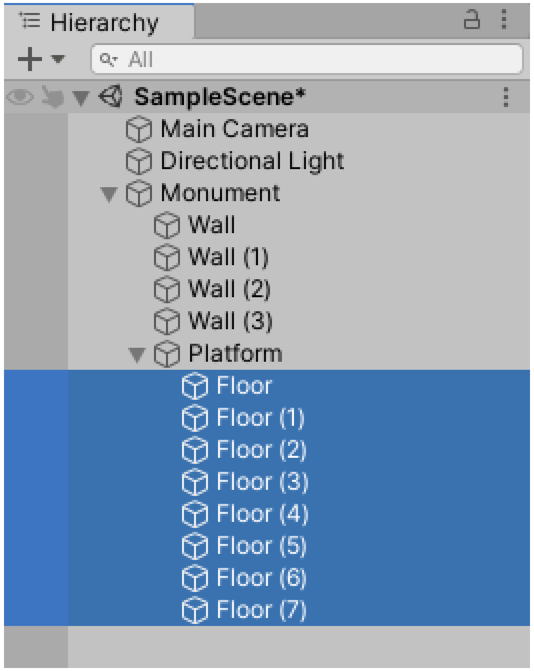


```
Hierarchy
+ ▾   All
▼ SampleScene*
    Main Camera
    Directional Light
  ▼ Monument
      Floor
      Floor (1)
      Floor (2)
      Floor (3)
      Floor (4)
      Floor (5)
      Floor (6)
      Floor (7)
      Wall
      Wall (1)
      Wall (2)
      Wall (3)
      Platform
```

2. Drag all the floor objects into the Platform GameObject. This creates what is called a **nested GameObject**, in which objects are nested at multiple levels as children of one GameObject. In this case, the Monument GameObject is the parent, and all the Floor GameObjects are its children. When you group objects together like this, you can manipulate them all together and make copies of the whole group while still maintaining the relationships between them.



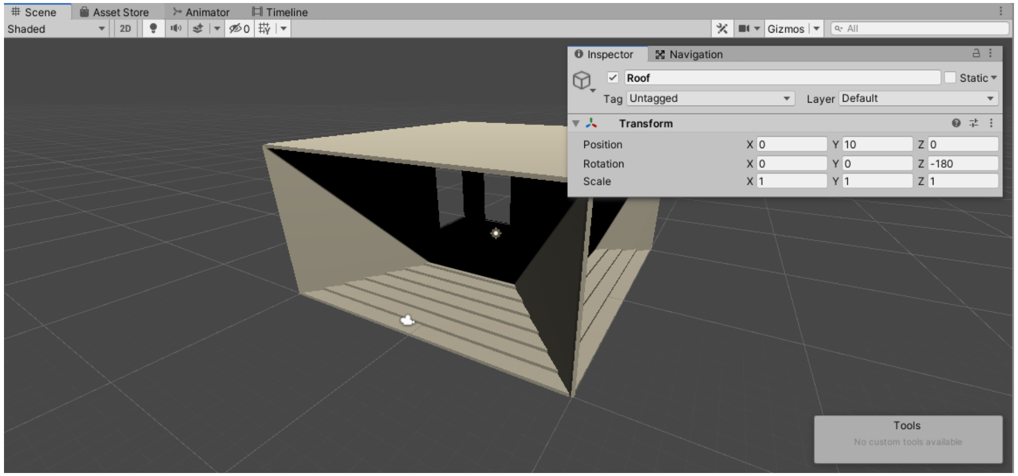
```
Hierarchy
+ ▾   All
▼ SampleScene*
    Main Camera
    Directional Light
  ▼ Monument
      Floor
      Floor (1)
      Floor (2)
      Floor (3)
      Floor (4)
      Floor (5)
      Floor (6)
      Floor (7)
      Wall
      Wall (1)
      Wall (2)
      Wall (3)
      Platform
```



```
Hierarchy
+ ▾   All
▼ SampleScene*
    Main Camera
    Directional Light
  ▼ Monument
      Wall
      Wall (1)
      Wall (2)
      Wall (3)
    ▼ Platform
        Floor
        Floor (1)
        Floor (2)
        Floor (3)
        Floor (4)
        Floor (5)
        Floor (6)
        Floor (7)
```

3. Duplicate the Platform GameObject. The duplicate Platform will include duplicate child objects. Rename this copy of Platform to Roof.

4. Select the Roof and use the Move and Rotate tools to put the roof onto the structure. Try positioning the Roof in the Scene view without changing the numbers in the Transform Component, but when you are done, the numbers should look like the ones shown below.



☑ Roof

Tag Untagged Layer Default

Transform

Position	X 0	Y 10	Z 0
Rotation	X 0	Y 0	Z -180
Scale	X 1	Y 1	Z 1

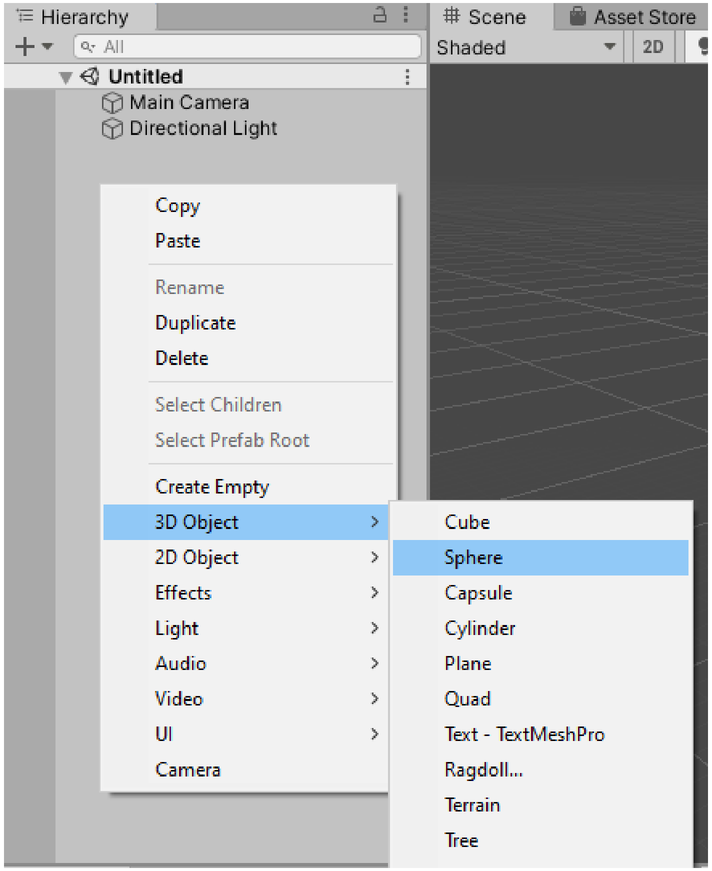
Add components to 3D GameObjects

Summary

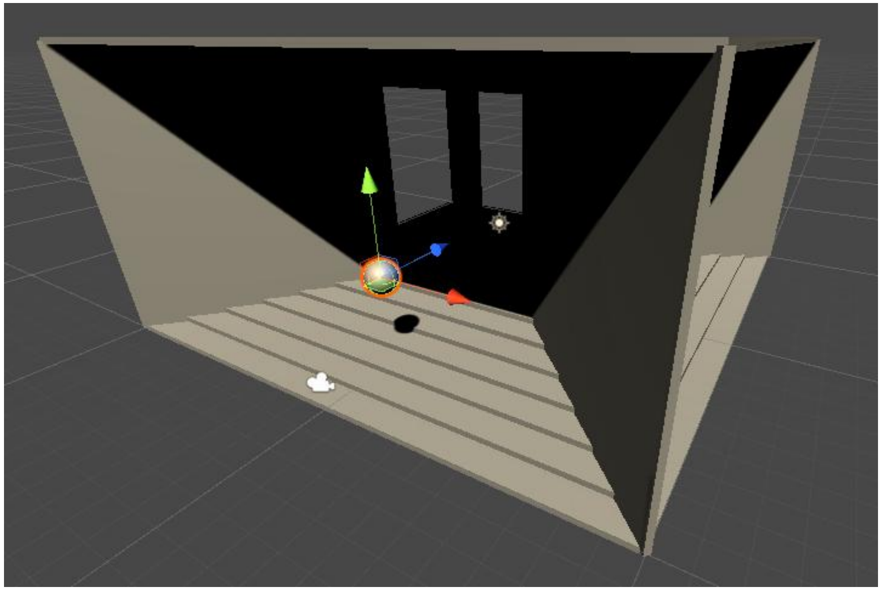
In this tutorial, you will see how components add functionality to GameObjects. The component you will see in action here, the RigidBody Component, lets a GameObject behave like a physical object instead of floating in space. In this tutorial, you will:

- Position the Main Camera to display action in the Game view.
- Explore the relationship between GameObjects and components.
- Identify specific components in the Inspector window.
- Add physical properties to a 3D GameObject by applying the RigidBody component and setting its properties.
- Enter Play mode to preview a Scene in the Game view.
- Experiment with 3D physics in Unity.

1. Create a new Sphere GameObject in the Hierarchy.



2. Move the sphere to the space inside the Monument, so that it is positioned in “mid-air” above the steps. You can use the Transform tools, the Transform Component in the Inspector, or both.

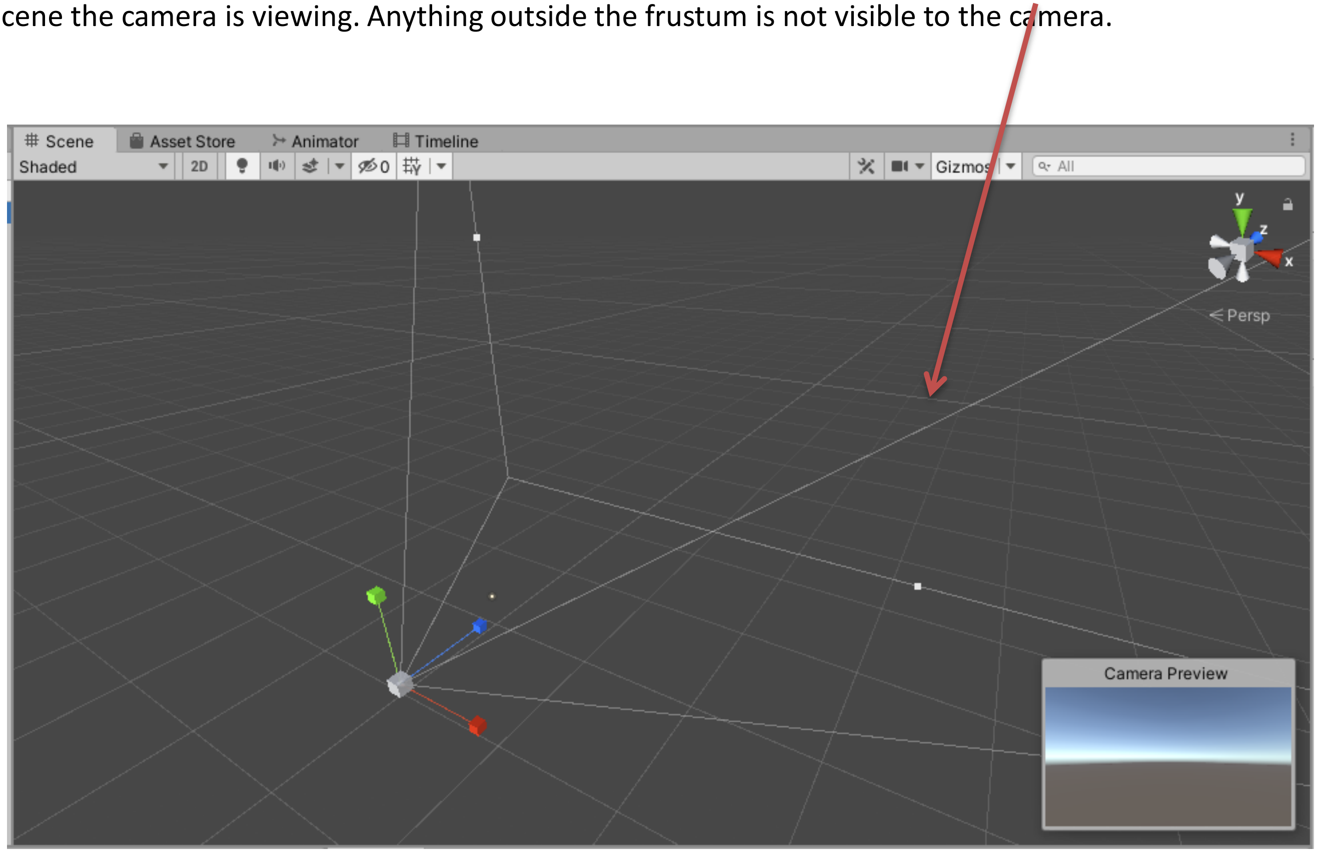


3.Position the Main Camera

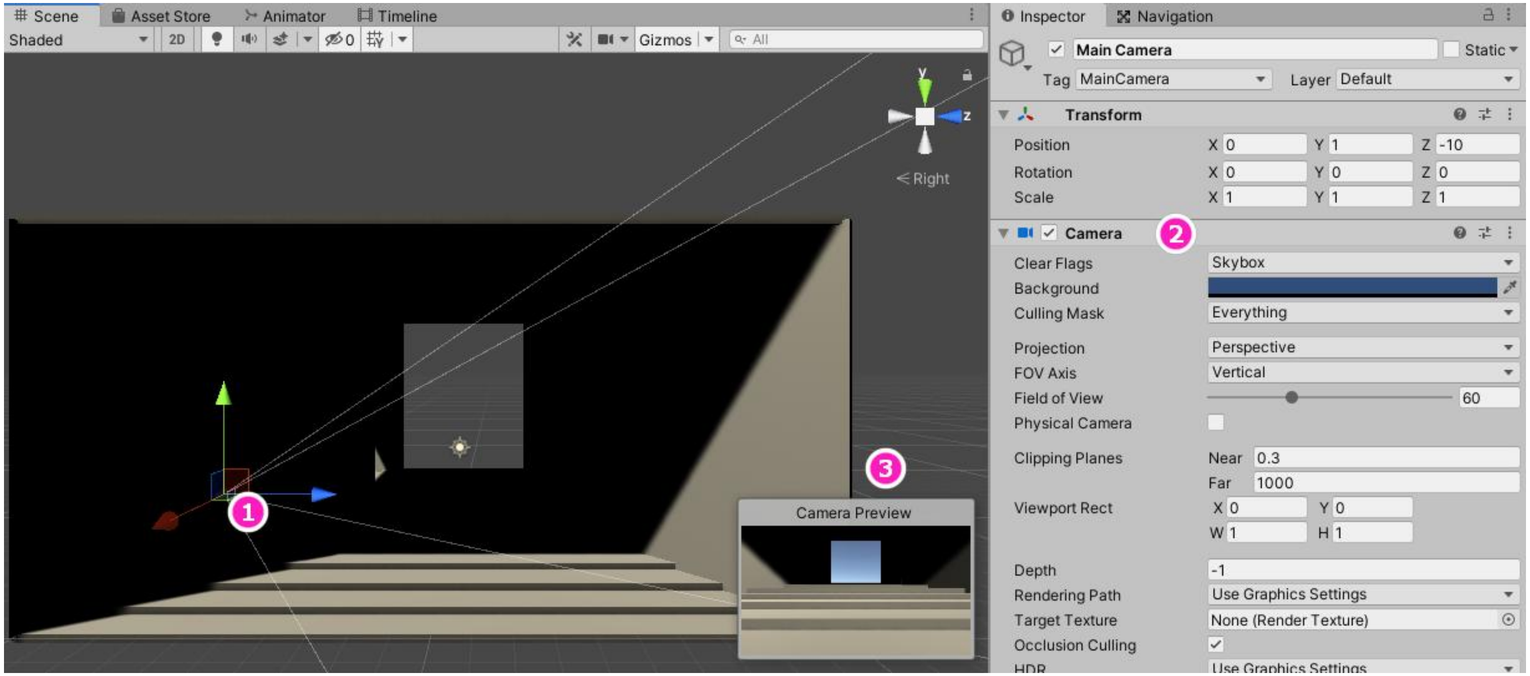
In every new Scene, there is a **camera** like the one shown below.

This camera, named Main Camera in the Hierarchy, captures and displays your Scene to the player as it appears in the **Game view**. While the Scene view is where you build Scenes, the Game view is a preview of the way your game appears to the player. The camera in your Scene is a GameObject like any other. When you select it, you will see its Transform Component in the Inspector window. You can change these settings as you would with any other GameObject. Note that scaling a camera will have no effect.

When you select a camera, you see the outlines of a pyramid-like shape called the **frustum**. The frustum shows you what part of your Scene the camera is viewing. Anything outside the frustum is not visible to the camera.



When a camera is selected **(1)**, you can expand the Camera Component in the Inspector **(2)** to open a **Camera Preview** window **(3)** that shows you what is visible to the camera in the Scene.



☑ Main Camera □ Static

Tag MainCamera Layer Default

Transform

Position	X 0	Y 1	Z -10
Rotation	X 0	Y 0	Z 0
Scale	X 1	Y 1	Z 1

☑ Camera

Clear Flags	Skybox
Background	
Culling Mask	Everything
Projection	Perspective
FOV Axis	Vertical
Field of View	60
Physical Camera	□
Clipping Planes	Near 0.3 Far 1000
Viewport Rect	X 0 Y 0 W 1 H 1
Depth	-1
Rendering Path	Use Graphics Settings
Target Texture	None (Render Texture)
Occlusion Culling	☑
HDR	Use Graphics Settings

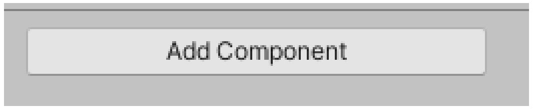
Move the camera to a position where it can “see” the ball and the steps below it.
Tip: You can also move the camera to align with your current scene view by selecting it in the Hierarchy window and then pressing Ctrl+Shift+F.

Select the play button to run the game. Notice that nothing is happening at the moment. This is because you still need to apply a component to the sphere to tell it how it needs to interact with the physics of the game. In this case, you need to make it solid so that it reacts to gravity.

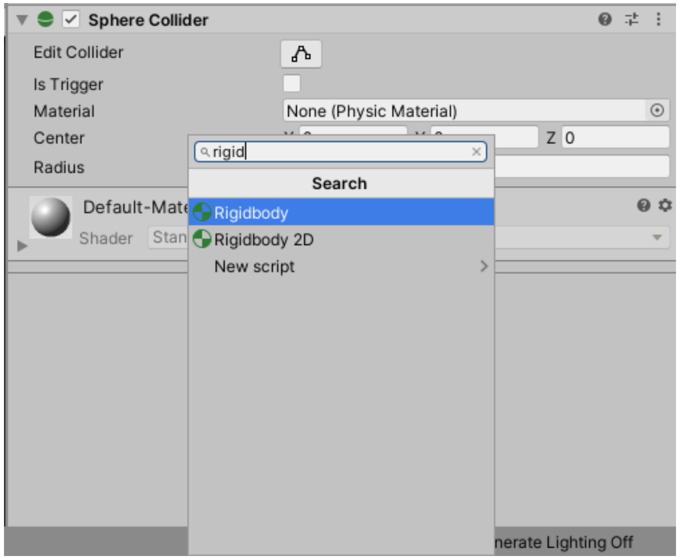
4.Make the sphere solid

in a Unity Scene, by default, GameObjects don’t have mass or respond to gravity. To make a GameObject behave like a real-world physical object, you can give it physical properties by adding a **RigidBody Component**.

To add the RigidBody Component to the Sphere GameObject:
1. In the Hierarchy window, select the Sphere.
2. Select the **Add Component** button in the Inspector window.

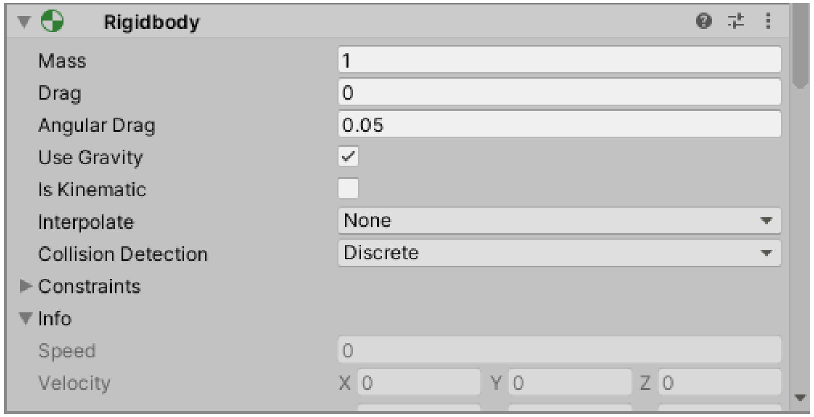


3. Use the search bar to find a **Rigidbody** component and select it. Note that there are two options available, **Rigidbody** and **Rigidbody 2D**. Make sure you select the **Rigidbody** component, not the 2D one.



Sphere Collider
Edit Collider
Is Trigger □
Material: None (Physic Material)
Center: Z 0
Radius
Default-Mate
Shader: Stan
rigid
Search
Rigidbody
Rigidbody 2D
New script
nerate Lighting Off

4. In the RigidBody Component in the Inspector, select Use Gravity if it is not already selected.



Rigidbody
Mass: 1
Drag: 0
Angular Drag: 0.05
Use Gravity: ☑
Is Kinematic: □
Interpolate: None
Collision Detection: Discrete
Constraints
Info
Speed: 0
Velocity: X 0 Y 0 Z 0

5. To see the effect of these properties, start the game by pressing the Play button, which will display the Game view.
The ball falls and rolls down the steps. If it does not roll, try moving it to a new position using the transform tools and run the game again.

5.Experiment with falling GameObjects

Try variations of this exercise. Move the Sphere GameObject and the Main Camera to get the results you want.

More things to try:

- Add more spheres with RigidBody Components at varying heights.
- Add other primitives and see how they behave.
- Drop objects in different places.
- Rotate the Monument GameObject.

One thing to note is that you can change the properties, values and position of a selected GameObject while the game is running, but when the game is stopped all values will revert back to what they were before the game was started. This is useful to test different parameters during runtime, but if you want the changes to be permanent, you need to make the changes while the game is stopped.

Create effects for 3D GameObjects

Summary

In this tutorial, you’ll explore some visual and physical effects you can achieve in a 3D Scene.

You will:

- Create and configure a new Material to add visual properties to a GameObject.

- Create and configure a Physic Material to add physical properties to a GameObject.

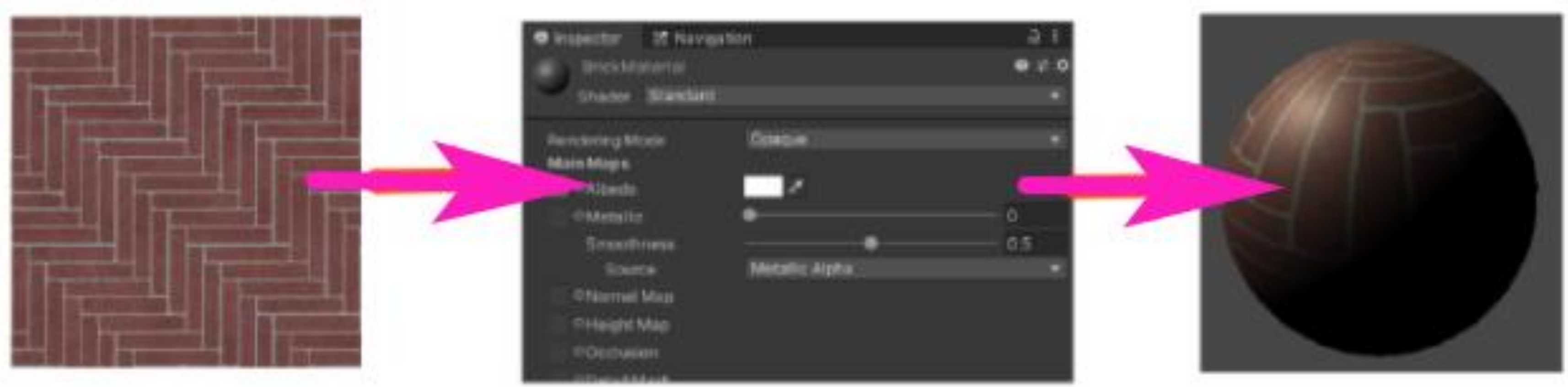
- Configure the directional light.

Materials

Herringbone_Brick_baseColor.png

1.Overview

Materials are components that define the surface characteristics of objects, and how those surfaces interact with light. In each new 3D Scene, **directional light** is included to simulate the sun. In this tutorial, you will create a simple Material to change the visual appearance of a GameObject, and use a Material to change physical properties as well. The directional light will bounce off the GameObject with its Material to create a visually realistic effect.



BrickMaterial
Shader Standard
Rendering Mode Opaque
Main Maps
Albedo
Metallic 0
Smoothness 0.5
Source Metallic Alpha
Normal Map
Height Map
Occlusion
Detail Mask

2.Before you begin

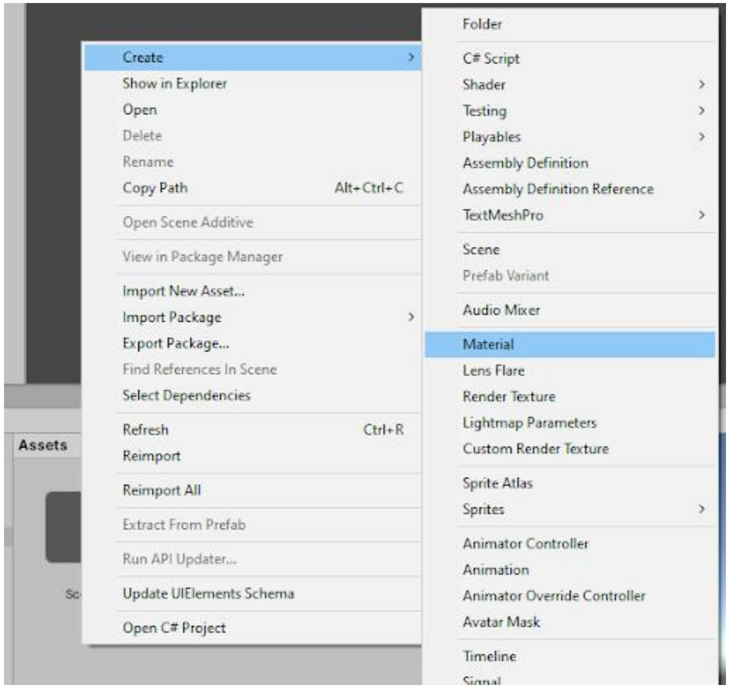
The visual appearance of the Material will come from an image file. You can download the file used in the steps below, Herringbone_Brick_baseColor.png,

Materials
[Herringbone_Brick_baseColor.png]

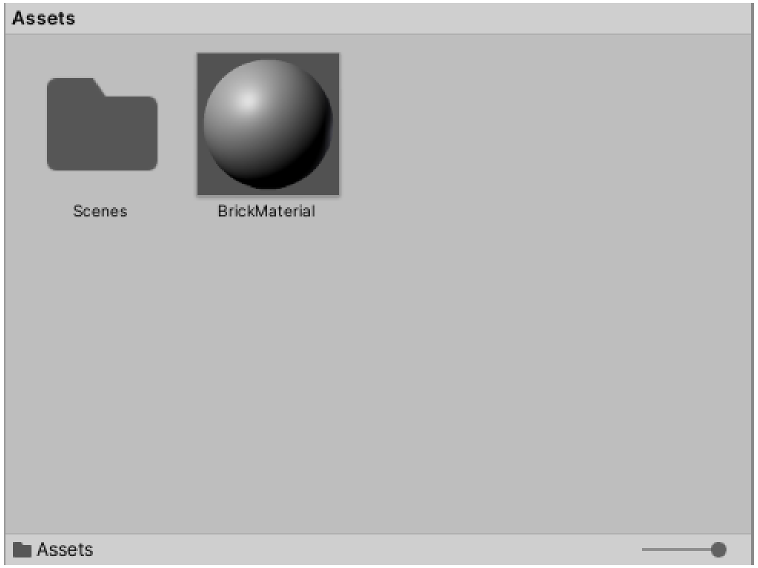
3.Import an image file

1. To make your Unity windows match the examples below, right-click the tab of the Project window and select **Two Column Layout** if it is not selected already. The folders of your project appear in the left column, and the contents of the selected folder appear in the right column.

2. Right-click the Assets folder in the Project window and select **Create** > **Material**.

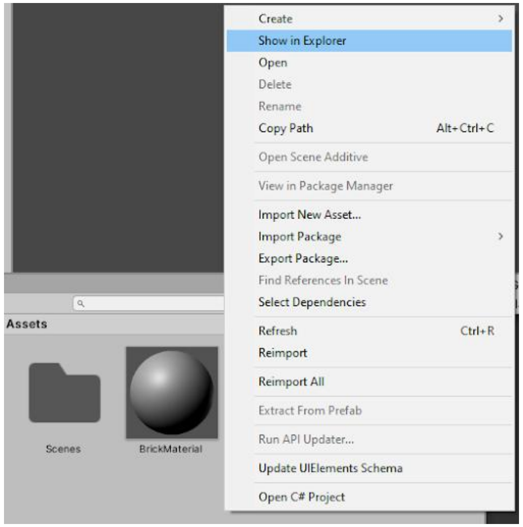


3. Rename the new Material as BrickMaterial. The preview of the new Material is a 3D sphere, so that you can see how light interacts with the Material at many angles. When you select the Material in the Project window, a more accurate preview appears in a resizable pane of the Inspector.

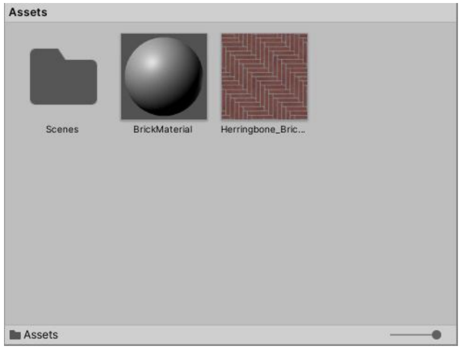


4. Download the file Herringbone_Brick_baseColor.png.

5. To import the file into the project, you can simply move the downloaded file to the Assets folder for this Unity project, which is represented in the Project window. To see the contents of the Assets folder in your file explorer, right-click the Assets folder and select **Show in Explorer**.

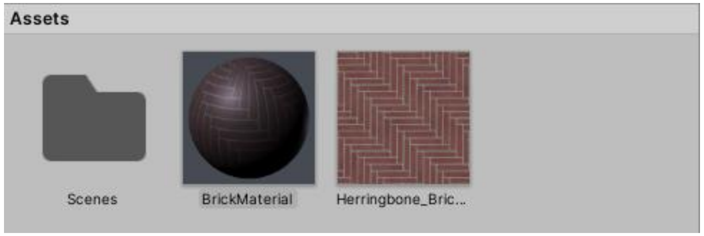


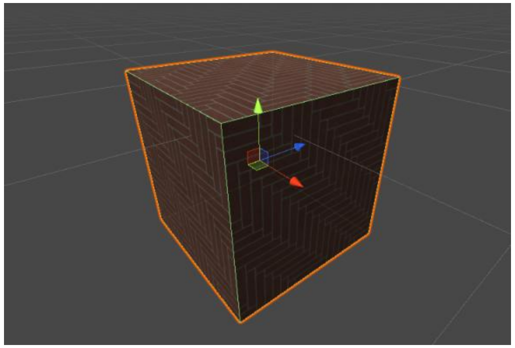
6. In your computer’s file explorer, move the Herringbone_Brick_baseColor.png file into your Assets folder. When you return to Unity, you will see its icon.



4.Create the Brick Material

1. Select the BrickMaterial.
2. In the Inspector window, select the circle icon next to the Albedo property. **Albedo** encompasses the reflective properties of the Material, based on a solid color or an image.
3. Select **Herringbone_Brick_baseColor** from the list of images in your project.
The image is now applied to the material as the **Albedo map,** and will appear in the Material preview.



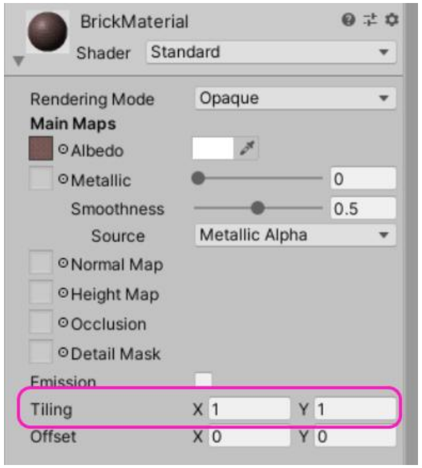


4. Create a new cube GameObject in the Scene.

5. Drag the material onto the cube in the Scene view.

6. The cube now displays the brick Material.

7. To change the scale of the Material, select the cube, open the BrickMaterial Component in the Inspector, and change the Tiling X and Y properties. Smaller numbers make the bricks appear larger.



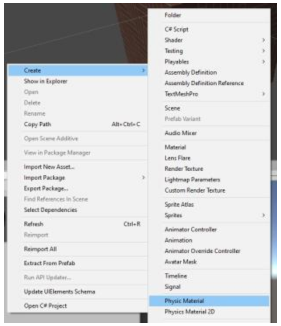
BrickMaterial
Shader Standard

Rendering Mode Opaque
Main Maps
Albedo
Metallic 0
Smoothness 0.5
Source Metallic Alpha
Normal Map
Height Map
Occlusion
Detail Mask
Emission □
Tiling X 1 Y 1
Offset X 0 Y 0

5.Adding a Physic Material

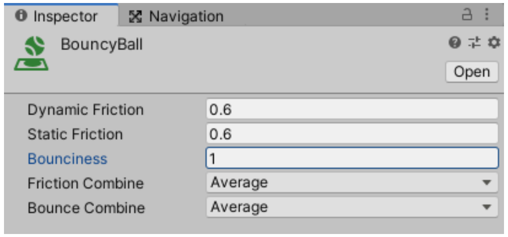
Earlier, you added a Rigidbody component to a GameObject to give it physical properties. You can also add additional physical characteristics with another type of Material called **Physic Materials**. With Physic Materials, you can make an object bounce and change its friction and drag properties. These properties take effect when the object is under the effects of gravity. Physic Materials don’t change the visual properties of the GameObject’s mesh.

1. In the Project window, create a new folder called Materials. Right-Click in the Materials folder in the Assets window and select **Create** > **Physic Material**.



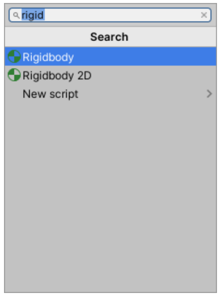
2. Rename the material to BouncyBall.

3. Select the new Physic Material.
4. Change the Bounciness value to 1 in the Inspector window.



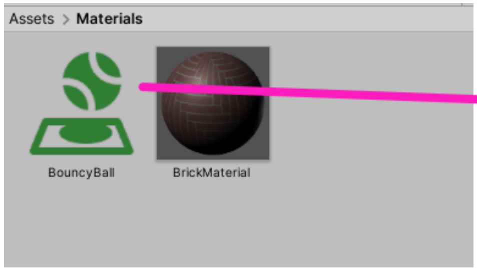
Dynamic Friction 0.6
Static Friction 0.6
Bounciness 1
Friction Combine Average
Bounce Combine Average

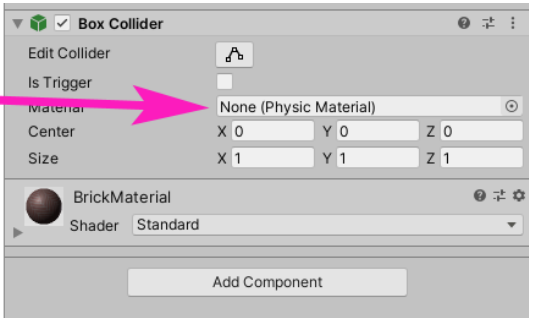
5. Select the cube. In the Inspector window, select **Add Component** and add a RigidBody component.



6. Your cube should already have a Box Collider component added to it. This component is automatically added when you create the cube in the scene. Drag the new Bounce physics material you created earlier into the *Material* slot in the Box Collider component.

7. Run the game. Your cube should now fall to the platform and have a bit of bounce when it hits the floor.
8. Experiment with your bouncy cube: try rotating it, duplicating it, and making cubes fall on top of each other!



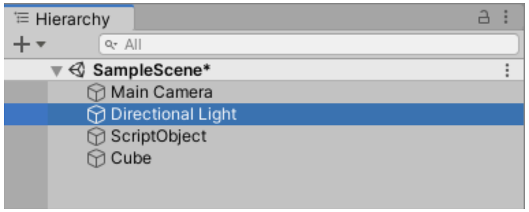


Is Trigger □
Material None (Physic Material)
Center X 0 Y 0 Z 0
Size X 1 Y 1 Z 1
Shader Standard

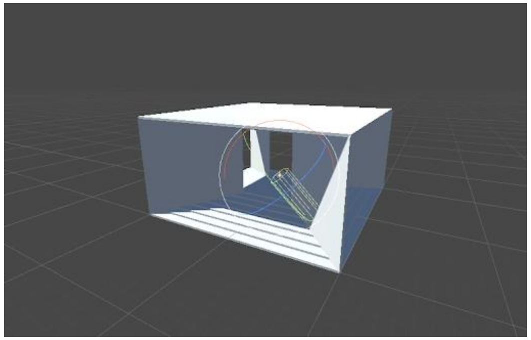
6.Adjusting the Lighting in the scene

In a new 3D Scene, an object named **Directional Light** is included to simulate sunlight. You can manipulate this light with transform tools like any other GameObject.

1. Select the **Directional Light** in the Hierarchy window.



2. Change the rotation of the light using the transform tools Move (shortcut key “w”) and Rotate (shortcut key “e”). Directional lights simulate a light source that bathes the entire scene in light coming from a specific direction. Changing the position of the light will not have an influence on the scene but changing the rotation will change the angle of the light in the Scene. Take note of how the sky and ambient light changes as you change the angle of the light.



Directional light is just one type of light. If you are interested in other types, see [Types of light].

Manage GameObjects with prefabs

In this tutorial, you'll use prefabs to design, create, and organize many GameObjects in a scene. By the end of this tutorial, you will be able to:

- Explain how to use prefabs in a scene.
- Add a prefab to a project.
- Edit a prefab in prefab mode.
- Create a prefab variant.
- Apply or revert changes to a prefab variant.
- Nest prefabs.
- Describe the process and outcomes for changing a nested prefab or prefab variant.

A **prefab** is an asset that acts as a template of a GameObject. From the prefab, you can create multiple copies, called **instances**. A change to the prefab asset causes all of its instances to change as well. To change many trees into cacti, you could just change a single prefab tree!

2.Create a prefab

To make your scene more fun, use prefabs to make many more falling bouncy balls. First, make a prefab to serve as your prototype bouncy ball:

1. Rename your original falling sphere GameObject to “BouncyBall”.

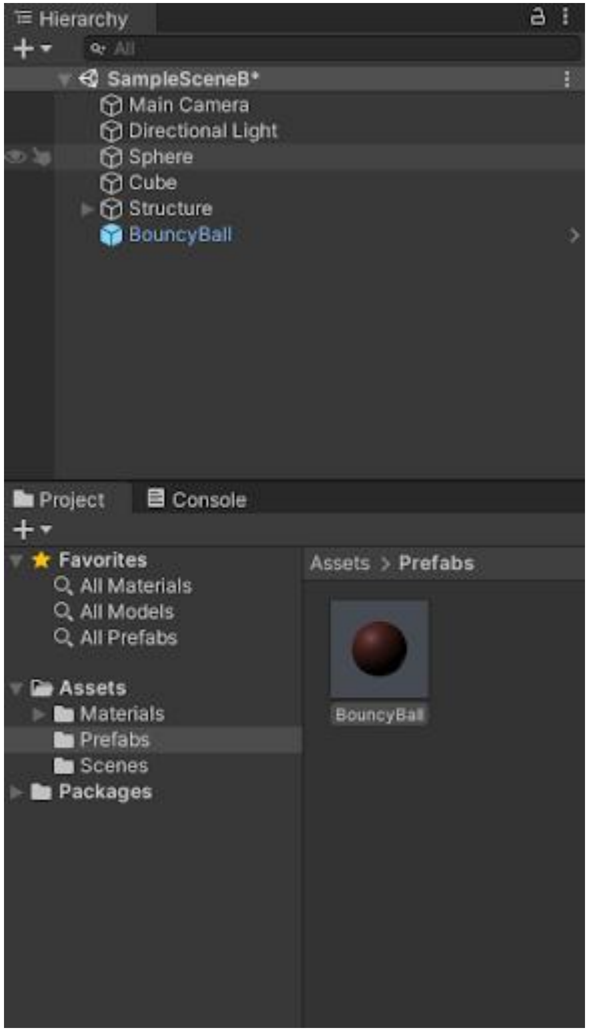
2. Make sure **BouncyBall** has a regular material and a Physic material. Adjust the size, too, if you like. You are about to create many copies of this sphere.

3. As you did with materials, make a folder for prefabs. In the Project window, select the **Assets** folder and right-click to select **Create** > **Folder**.

4. Rename the new folder to “Prefabs”.

5. Open the folder so that the right pane of the Project window (in a Two Column Layout) shows the empty folder, where you’ll see the message “This folder is empty”.

6. From the Hierarchy window, drag **BouncyBall** into the **Prefabs** folder. The new asset in your **Prefabs** folder with the blue cube icon is your prefab.
Note: Any folder in your project can contain prefabs, not just the Prefabs folder. However, using a Prefabs folder is good practice.
In the Hierarchy, the **BouncyBall** GameObject is now also blue to let you know that this object is an instance of your prefab.



3.Create prefab instances

With your prefab created, it’s easy to make a lot of bouncy balls to fall onto your structure:

1. From the **Prefabs** folder in the Project window, drag the **BouncyBall** prefab into your scene.

2. Drag several more instances into your scene, up to 10.

3. Position the new **BouncyBall** instances so that they will fall on your structure. For more bounce, position them higher (increase **Position Y**)!

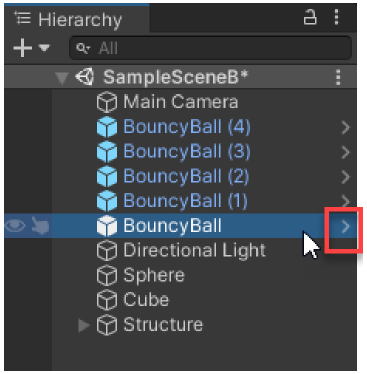
Tip: Hold down **Shift** in either the Scene view or the Hierarchy to select all your new instances at once, then position them as a group.

4. Run your application and watch the spheres fall and bounce!

4.Update prefab instances in prefab mode

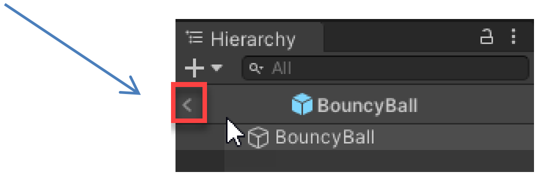
What if, for example, you wanted all your BouncyBall instances to be a different color? You can update the color all at once by updating your prefab in **prefab mode**, a special editing state in which you can change a prefab in the Scene window.
To enter prefab mode and edit your prefab:

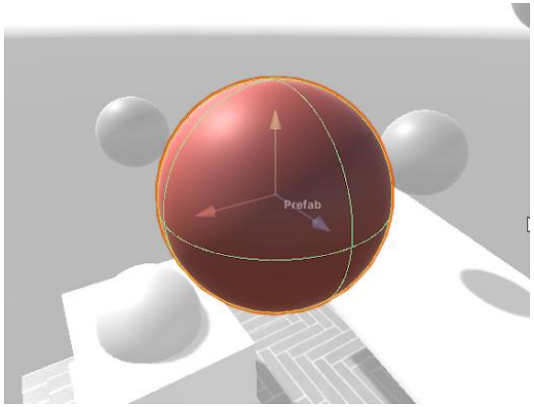
1. In the Hierarchy, select a prefab instance and then select the arrow on the right side of the row.



Tip: By default, prefab mode appears in the context of your scene. To edit your prefab in isolation, press **Alt** while selecting the arrow.
In prefab mode, the prefab is the only GameObject you can edit.

2. In the Project window, open your Materials folder and drag a different material onto the prefab in the Scene window. Select a material that will be noticeably different.
3. Select **Save** near the top right of the Scene window to save your changes. (If you skip this step, you'll be prompted to save when you exit prefab mode.) You can also enable **Auto Save** to save your edits as soon as you make them.
4. To exit prefab mode, select the arrow at the top left of the Hierarchy window.

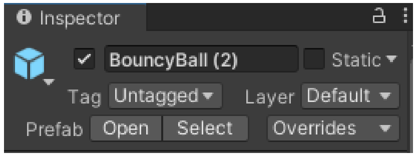




All your BouncyBall instances will have the new material!
This is a simple example, but prefabs are quite powerful. Consider these examples:
In a model of a city, there are 100 parking meters. You can change the text on every parking meter at once.
In a prototype of a game, a colleague is modeling the enemy character while you work on gameplay. Your placeholder for the enemy is a prefab of a capsule primitive. When the enemy is ready to import, you can simply replace the capsule object in the prefab with the new model.

5.Override prefab properties

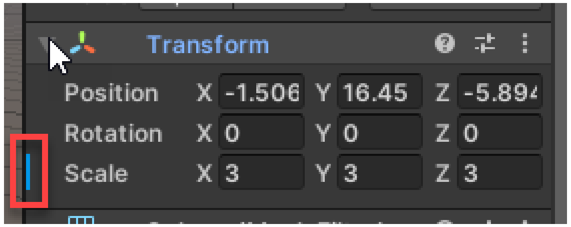
When you make a change to a property of one prefab instance, that property is called an **override,** since you are overriding the default prefab settings. The Inspector window helps you keep track of your overrides.


Inspector
BouncyBall (2)
Static
Tag Untagged
Layer Default
Prefab Open Select Overrides

To make variations in your prefab instances with overrides:

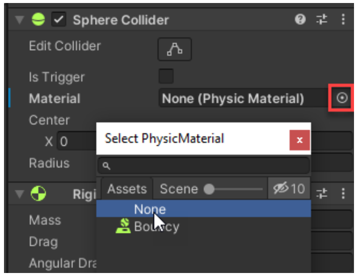
1. In the Scene view, select one of your BouncyBall prefab instances.
While this object is selected, take a look at the top of the Inspector window. There is an additional section titled **Prefab** containing controls that you can use to work with the prefab. (The **Open** button is another way to edit the prefab in prefab mode.)

2. Using the Transform component in the Inspector, change the **Scale** on the x, y and z-axes of this BouncyBall. Make the change noticeable in the Scene window.
The blue line in the left margin of the Inspector indicates that the **Scale** property varies from the base prefab.

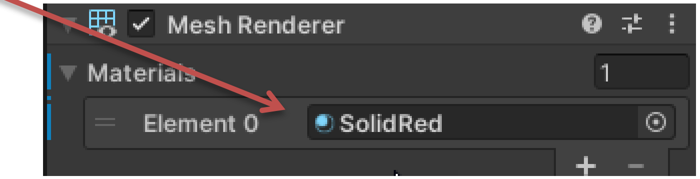

Transform

Position	X	-1.506	Y	16.45	Z	-5.894
Rotation	X	0	Y	0	Z	0
Scale	X	3	Y	3	Z	3

3. Using the Sphere Collider component in the Inspector, select the circle icon to change the Physic material to **None**. Now it will not bounce when it hits the ground.

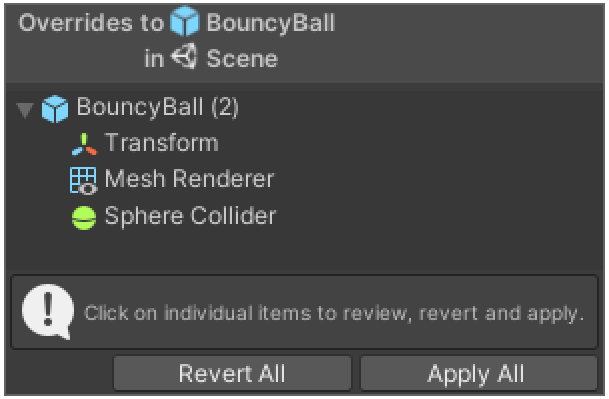

Sphere Collider
Edit Collider
Is Trigger
Material None (Physic Material)
Center
X 0
Radius
Select PhysicMaterial
Assets Scene 10
None
Bouncy
Rigi
Mass
Drag
Angular Dra

4. Apply a different material to this GameObject so that it looks visibly different from the others


Mesh Renderer
Materials 1
Element 0 SolidRed

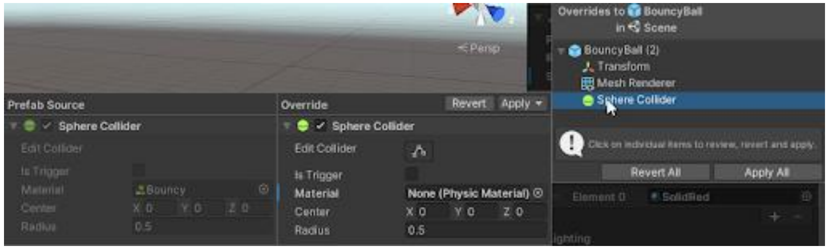
5. Run the application. Notice that the only sphere that doesn't bounce and has a different material is the one you edited. If you want to apply those changes to all instances of this prefab, you'll need to apply them to the base prefab.
You have now overridden three properties: the Scale, Physic material, and regular material. In the following steps you'll do something different with each one.

6. Using the **Prefab** controls at the top of the Inspector, select **Overrides** to see a list of components that differ from the prefab.



Click on individual items to review, revert and apply.

7. Let's say that you have changed your mind about removing the **Bouncy** Physic material. Select the Sphere Collider component from the **Overrides** list to view two versions of the component: **Prefab Source** and **Override**.



Prefab Source – Sphere Collider
Edit Collider
Is Trigger
Material: Bouncy
Center: X 0 Y 0 Z 0
Radius: 0.5

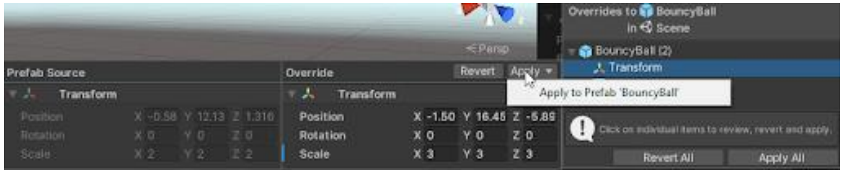
Override – Sphere Collider
Edit Collider
Is Trigger
Material: None (Physic Material)
Center: X 0 Y 0 Z 0
Radius: 0.5

Click on individual items to review, revert and apply.

Element 0: SolidRed

8. To return the Sphere Collider back to the original settings, select **Revert** at the top of the **Override** version of the component. This ball will change back to use the Bouncy Physic material.

9. Let's say that you want all your bouncy balls to be as large as this one. To apply the override in the Transform component to the base prefab, return to the **Overrides** dropdown and select **Transform** > **Apply** > **Apply to Prefab "BouncyBall"**. All of the balls will change size!



Prefab Source – Transform
Position: X -0.58 Y 12.13 Z 1.316
Rotation: X 0 Y 0 Z 0
Scale: X 2 Y 2 Z 2

Override – Transform
Position: X -1.50 Y 16.45 Z -5.89
Rotation: X 0 Y 0 Z 0
Scale: X 3 Y 3 Z 3

Click on individual items to review, revert and apply.

Overrides are useful if you want to make variations to your prefabs one at a time or test a change before you apply it to multiple GameObjects. In the next step, you'll see how to organize different variations of your prefabs.

6.Create prefab variants

You can create networks of variations using **prefab variants**, which are prefabs based on other prefabs.
Prefab variants make it much easier to create a series of interrelated prefabs that will give your project a uniform look. For example, in a project with many trees, you could create a base prefab of a tree and then create apple tree and peach tree variants of that prefab.

When you make changes to the base tree prefab, they will appear on all the apple and peach trees. When you make changes to the peach tree variant, they will appear only on the peach trees.
To create a prefab variant of your BouncyBall:

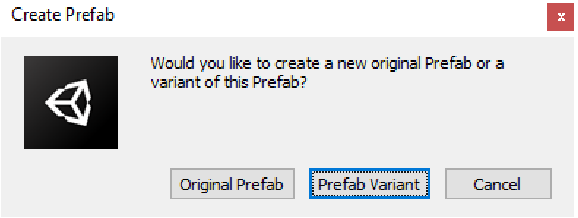
1. Select the BouncyBall instance you've been working on, which has a different material than the others.

2. From the Hierarchy, drag this instance into your Prefabs folder. You'll see a prompt to create a new original prefab or a prefab variant.

3. Select **prefab variant**. (If you select **Original Prefab**, then changes to the original prefab won't propagate to the prefab variant.)

4. In the **Prefabs** folder in the Project window, rename your new prefab something descriptive, like "RedBouncyBall."

5. To create more of these new bouncy balls, drag new instances of this new prefab into your scene and reposition them to fall on your structure.



Create Prefab

Would you like to create a new original Prefab or a variant of this Prefab?

Get 3D assets

In this tutorial, we'll explain sources of 3D assets: assets made with Digital Content Creation (DCC) tools or procured from the Unity Asset Store. We will walk through the steps for using the Asset Store to get assets you will need for the tutorial following this one.

In this tutorial, you'll be able to:

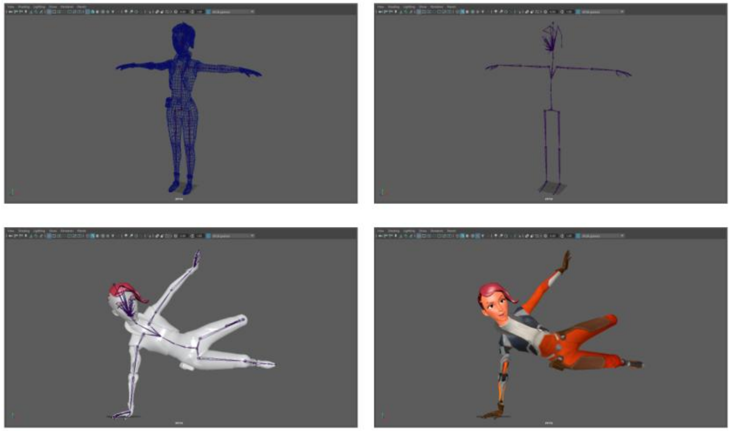
- Explain the content creation tools that support real-time 3D production
- Navigate to the Asset Store in a web browser
- Search and filter a search in the Asset Store
- Import an asset from the Asset Store automatically via a Unity account

2.What are 3D DCCs?

3D Digital Content Creation tools (DCCs) such as Maya, ZBrush, and Blender allow artists to create environments, models, and characters in three dimensions.

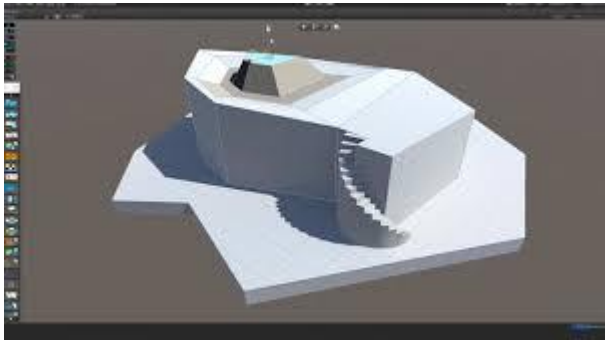
In these programs, artists **model** the shape of a 3D object, **rig** it so that it can be animated, **animate** it to move in a particular way, and **texture** it to give it color and shading. An example of this is shown below.

The 3D assets made in DCCs are brought into a real-time engine such as Unity, where they are integrated into a larger project like a game, simulation, or animated film.



3.Other resources for 3D assets in Unity

It is possible to create 3D art and environments within the Unity editor using a tool called ProBuilder. Probuilder has limited functionality compared to dedicated DCCs, but it is helpful for artists who want to quickly model 3D objects without opening an external editing tool.



Not everyone has the time to learn a 3D DCC or the budget to hire someone to create 3D art for them, but there are many online resources for obtaining high quality assets. In addition to sites like CGTrader and Turbosquid, which offer 3D models for all purposes, the Unity Asset Store is an invaluable resource for art specifically designed with Unity in mind.

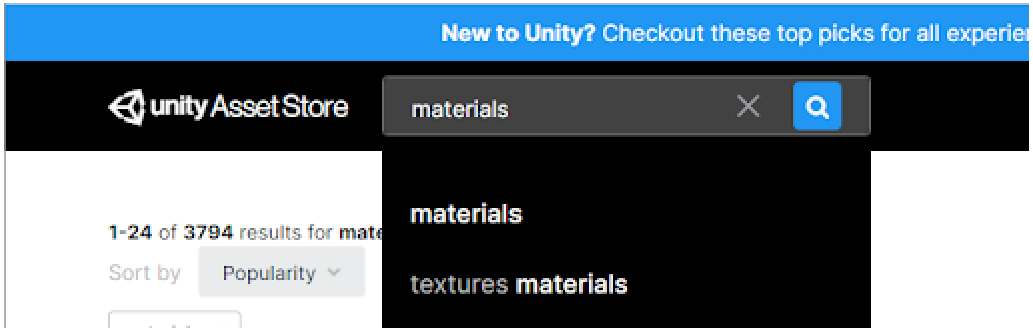
5.Get assets from the Asset Store

You can take advantage of the talent, time, and effort it takes to create 3D assets by visiting the Unity Asset Store. The Asset Store is a convenient platform for specialized asset creators to share or sell their work, and for real-time creators to find pre-designed, pre-built assets that are ready to use. These assets include 3D models, Materials, animations, loading screens, scripts, and anything else you might need for your project.

Please note that this tutorial is made in Unity version 2019. In the 2020 release of Unity, the Asset Store downloads will move to the Package Manager, creating a slightly different process.

1. Go to the Unity Asset store (this link will open in your default browser) and log in with your Unity ID.
Hint: Anything you acquire through the Asset Store will be linked to your Unity account and will be available in the Editor as long as you are signed in with the same Unity ID.

2. In the Asset Store search tab, type "materials" to search for available Material assets. All assets with the tag of "materials" appear.

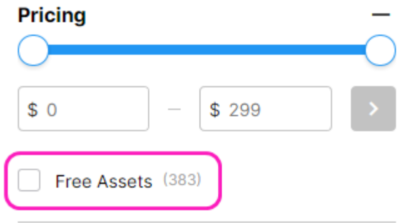


New to Unity? Checkout these top picks for all experie

materials

1-24 of 3794 results for mate

3. Use the checkbox on the right of the store screen to view only the free assets.

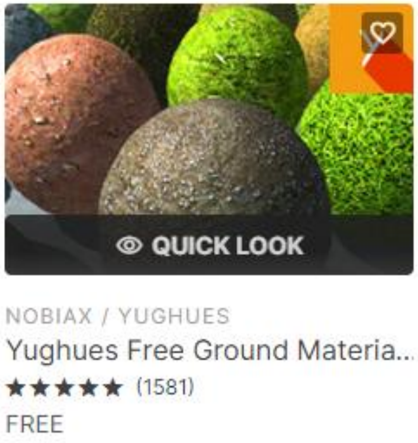


Pricing

$ 0 – $ 299

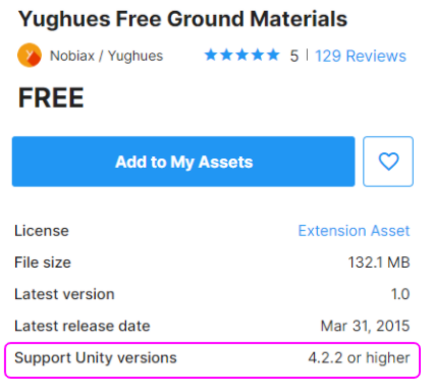
□ Free Assets (383)

4. Select the **Yughues Free Ground Materials** (or something similar).



NOBIAX / YUGHUES
Yughues Free Ground Materia...
★★★★★ (1581)
FREE

5. Check the Unity version of the assets you have selected. It is critical to make sure that the assets will be compatible with your version of Unity. On the Details page, you will see all the information about the asset, including the Unity version compatibility.



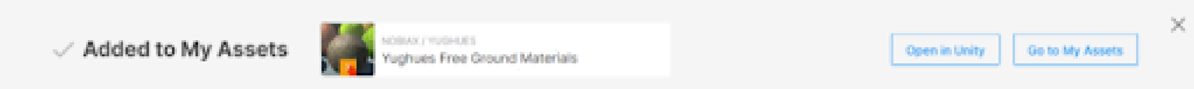
Yughues Free Ground Materials

Nobiax / Yughues ★★★★★ 5 | 129 Reviews

FREE

License	Extension Asset
File size	132.1 MB
Latest version	1.0
Latest release date	Mar 31, 2015
Support Unity versions	4.2.2 or higher

6. Select **Add to My Assets** to begin the process of procuring the asset package you have chosen. You will see a confirmation message like the one below.



✓ Added to My Assets

NOBIAX / YUGHUES

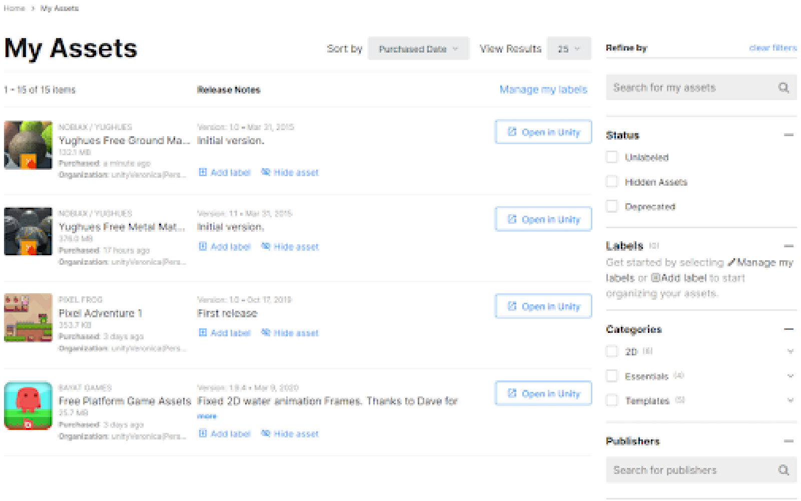
Yughues Free Ground Materials

1. Select **Go to My Assets** to view your My Assets page.

6.Import assets from the Asset Store

1. Select **Go to My Assets** to view your My Assets page.

You can always return to the My Assets page in the Asset Store to view the assets you have selected and purchased



Home > My Assets

My Assets

Sort by: Purchased Date | View Results: 25

1 - 15 of 15 items | Release Notes | Manage my labels

NOBIAX / YUGHUES
Yughues Free Ground Ma...
132.1 MB
Purchased: a minute ago
Organization: unity\Veronica\Pers...
Version: 1.0 • Mar 31, 2015
Initial version.
Add label | Hide asset | Open in Unity

NOBIAX / YUGHUES
Yughues Free Metal Mat...
376.0 MB
Purchased: 17 hours ago
Organization: unity\Veronica\Pers...
Version: 1.1 • Mar 31, 2015
Initial version.
Add label | Hide asset | Open in Unity

PIXEL FROG
Pixel Adventure 1
353.7 KB
Purchased: 3 days ago
Organization: unity\Veronica\Pers...
Version: 1.0 • Oct 17, 2019
First release
Add label | Hide asset | Open in Unity

BAYAT GAMES
Free Platform Game Assets
25.7 MB
Purchased: 3 days ago
Organization: unity\Veronica\Pers...
Version: 1.9.4 • Mar 9, 2020
Fixed 2D water animation Frames. Thanks to Dave for
more
Add label | Hide asset | Open in Unity

Refine by | clear filters

Search for my assets

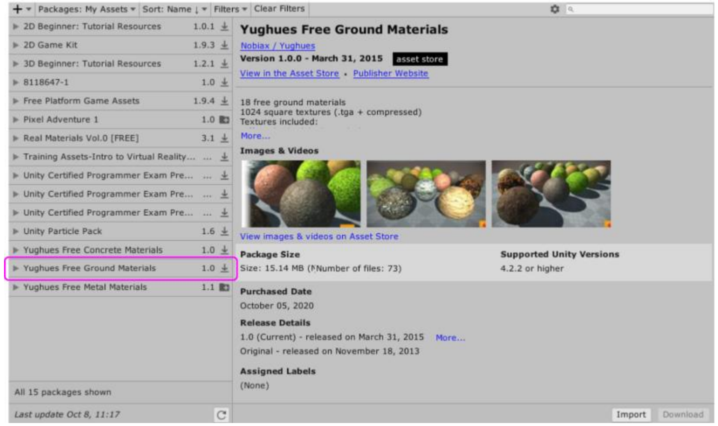
Status
□ Unlabeled
□ Hidden Assets
□ Deprecated

Labels (0)
Get started by selecting Manage my labels or Add label to start organizing your assets.

Categories
□ 2D (6)
□ Essentials (4)
□ Templates (3)

Publishers
Search for publishers

2. Select the **Open in Unity** button for the assets you just selected. If your computer prompts you to open the Unity Editor, select the option to do so. The Unity Editor will open with the My Assets section of the Package Manager displayed, including the asset package you just selected in the Asset Store.



+ | Packages: My Assets | Sort: Name ↓ | Filters | Clear Filters

2D Beginner: Tutorial Resources	1.0.1
2D Game Kit	1.9.3
3D Beginner: Tutorial Resources	1.2.1
8118647-1	1.0
Free Platform Game Assets	1.9.4
Pixel Adventure 1	1.0
Real Materials Vol.0 [FREE]	3.1
Training Assets-Intro to Virtual Reality...	...
Unity Certified Programmer Exam Pre...	...
Unity Certified Programmer Exam Pre...	...
Unity Certified Programmer Exam Pre...	...
Unity Particle Pack	1.6
Yughues Free Concrete Materials	1.0
Yughues Free Ground Materials	1.0
Yughues Free Metal Materials	1.1

All 15 packages shown

Last update Oct 8, 11:17

Yughues Free Ground Materials
Nobiax / Yughues
Version 1.0.0 - March 31, 2015 asset store
View in the Asset Store • Publisher Website

18 free ground materials
1024 square textures (.tga + compressed)
Textures included:
More...

Images & Videos
View images & videos on Asset Store

Package Size
Size: 15.14 MB (Number of files: 73)

Supported Unity Versions
4.2.2 or higher

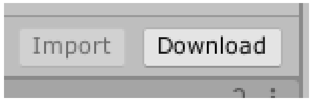
Purchased Date
October 05, 2020

Release Details
1.0 (Current) - released on March 31, 2015 More...
Original - released on November 18, 2013

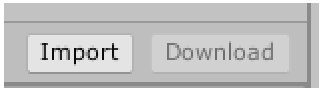
Assigned Labels
(None)

Import | Download

3. Select the package from the Asset Store, and select the Download button at the lower right corner. Once you have downloaded an asset package from any project, you do not have to download it again for use in another project, and this button will not be highlighted.

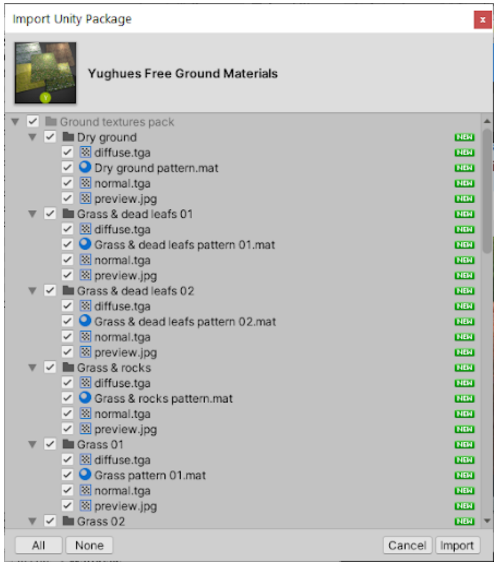


4. When downloading is complete, select the Import button.



5. An import options panel will open. Use the checkboxes to import everything or only specific assets in the package. For this example, select everything and select the **Import** button at the bottom of the panel.

The package will be extracted and placed in your project's Assets folder.

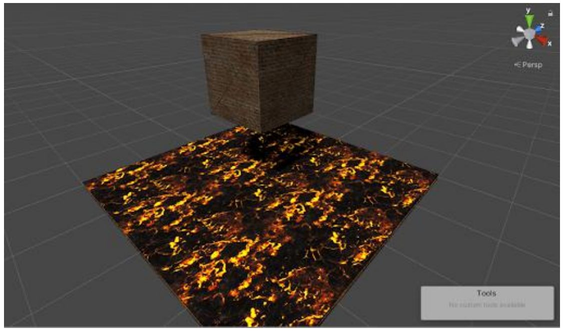


Import Unity Package

Yughues Free Ground Materials

```
▼ ☑ Ground textures pack
  ▼ ☑ Dry ground                                  NEW
      ☑ diffuse.tga                               NEW
      ☑ Dry ground pattern.mat                    NEW
      ☑ normal.tga                                NEW
      ☑ preview.jpg                               NEW
  ▼ ☑ Grass & dead leafs 01                       NEW
      ☑ diffuse.tga                               NEW
      ☑ Grass & dead leafs pattern 01.mat         NEW
      ☑ normal.tga                                NEW
      ☑ preview.jpg                               NEW
  ▼ ☑ Grass & dead leafs 02                       NEW
      ☑ diffuse.tga                               NEW
      ☑ Grass & dead leafs pattern 02.mat         NEW
      ☑ normal.tga                                NEW
      ☑ preview.jpg                               NEW
  ▼ ☑ Grass & rocks                               NEW
      ☑ diffuse.tga                               NEW
      ☑ Grass & rocks pattern.mat                 NEW
      ☑ normal.tga                                NEW
      ☑ preview.jpg                               NEW
  ▼ ☑ Grass 01                                    NEW
      ☑ diffuse.tga                               NEW
      ☑ Grass pattern 01.mat                      NEW
      ☑ normal.tga                                NEW
      ☑ preview.jpg                               NEW
  ▼ ☑ Grass 02                                    NEW
```

6. Create a Plane to act as the ground for your Scene. Select one of the Materials and drag it onto the ground platform. The Material is now added to your GameObject.



Publish your project

Summary

Let’s see what you’ve made! In this tutorial, you’ll:

- Set the platform for a build of a Unity project
- Create a basic build of a Unity project.
- Share your project with the Unity Learn community.

When your game is ready, it is time to create a **build**, which is a standalone, playable version of your game. Unity supports most popular platforms, including mobile (Android and iOS), which allows you to quickly publish your project with a few simple clicks.

Keep in mind that while it is easy to publish to different platforms, it is up to you, the game developer, to make sure that your game can run on the target platforms. For example, the resources available on a smartphone are vastly different than those on a Playstation. Just because you can build for a platform, your game will not necessarily run on that platform.

In this tutorial, you will publish to WebGL (HTML5) so that you can share your project on the web with the Foundations community, if you like. The build process is the same for publishing to any other platform such as Windows, Linux or MacOS.