[00:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=0s) Intro

* Focus on Game Manager
* Menu Screen

**BALLs & Shits**

[02:55](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=175s) Starting in Unity

[03:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=180s) Organizing Folders in Project

[03:30](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=210s) Creating the First Game Object - the ball

[04:45](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=285s) Changing perspective to orthographic camera

[07:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=420s) Creating your First Script - ball physics movement

* Add rigid body
* Turn off gravity
* Add interpolate (makes ball looks smooth)

[07:35](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=455s) Defining your First Variable

[08:45](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=525s) Accessing a Rigidbody from a script

[09:15](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=555s) Setting the ball's initial velocity

[10:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=600s) Bounce the ball in OnCollisionEnter()

[10:15](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=615s) Reflecting a Vector3 to bounce the ball properly

[11:30](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=690s) Importance of the FixedUpdate() function

[11:55](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=715s) Forcing velocity of the ball to a constant speed

[12:40](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=760s) Keeping ball velocity consistent after impact

**WALLs & Shits**

[13:15](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=795s) Adding walls and ceiling to play arena

[13:40](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=820s) Using control key to snap movement in Unity

[15:05](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=905s) Freezing the axis of the ball to horizontal/vertical movement only

* Free Position z of the Ball’s rigidbody constraints => can only move up down left right.

**CONTROLLING the Player**

[16:25](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=985s) Controlling the paddle with mouse

[16:45](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1005s) Freezing paddle movement to left / right only

[17:45](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1065s) Correct way to force repositioning of a Rigidbody to from a script

[18:10](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1090s) Translating mouse movement (screenspace) to world space with ScreenToWorldPoint

[20:05](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1205s) Hiding the Mouse Cursor

[21:05](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1265s) Switching the Rigidbody to a Kinematic Object (make it "rock solid" =)

* Make paddle not interpolate
* Free position y of paddle, instead of isKinematic

**BRICKs & Shits**

[21:45](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1305s) Creating the Bricks / Blocks

[22:50](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1370s) Creating a PREFAB (Very important - don't know what a prefab is? Check this out)

[23:50](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1430s) Spacing between the bricks / blocks

[24:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1440s) Stressing the importance of PREFABs again - demonstrating the use of them

[25:10](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1510s) Exposing a variable in a script as a public variable so it can be changed in the Unity "inspector"

[26:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1560s) Are you a fan of big score or small scores??

[26:25](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1585s) Using OnCollisionEnter to reduce the hit counter

[27:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1620s) Destroying the brick / block on ball impact

* Change the hits values (default = 1) to determine how many times the bricks need to be hit before it disappears.

[28:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1680s) Creating your first material - coloring the bricks blue

[28:30](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1710s) Adding more bricks to the level, duplicating and positioning bricks

[30:20](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1820s) Adding rotational animation to bricks

[32:05](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1925s) Offsetting the rotation for twisting type of effect of the blocks

[33:10](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=1990s) Changing bricks to a metallic reflective look

[33:40](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2020s) Adding a white flash Amiga style "hit flash effect" like the good old side scrolling games

[37:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2220s) Using "Invoke" to delay a call to a function - in this case to restore the material after flash

[38:10](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2290s) Moving the bricks into a Level Prefab

**GAME MANAGER & Shits**

[38:50](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2330s) Creating the GAMEMANAGER script - this is controlling the game states and user interfaces!

[40:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2400s) Changing the ball and the paddle to prefabs so they can be "Instantiated"

[40:45](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2445s) Creating your first User Interfaces / Menu Screen

[41:25](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2485s) Creating the Main Menu UI panel

[41:35](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2495s) Adding the Play button to the Main Menu

[41:55](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2515s) Scaling the menu to maintain the same size compare to the screen size

[42:30](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2550s) Creating the Play UI panel with score, ball, and level counter

[43:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2580s) How to position UI elements - the RectTransform, anchoring point, alignment, and position

[45:25](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2725s) My 5 year old daughter explains what a Breakout Clone is

[46:45](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2805s) Using control. (period) to easily implement "using" statements

[47:05](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2825s) Exposing access to Score Text - Ball Text - and Level Text

[47:30](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2850s) Exposing access to UI panels, Menu - Play - Level Completed - Game Over

[48:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2880s) Creating the Level Completed UI Panel

[48:50](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2930s) Creating the Game Over UI Panel

[49:20](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2960s) Hiding unwanted UI Panels

[49:30](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2970s) Creating a State Machine with states Menu, Init, Play, LevelCompleted, LoadLevel, GameOver

[49:50](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=2990s) Making it possible to switch states using a SwitchState method

[50:45](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=3045s) Ending the CURRENT State and beginning a NEW State

[51:45](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=3105s) Ctrl Period to implement all missing cases

[52:50](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=3170s) Showing and hiding panels on Begin / End States

[54:55](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=3295s) Making the Play button work

[57:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=3420s) Using Properties to update UI Score / Ball / Level texts

[59:15](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=3555s) Adding points to score

[1:01:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=3660s) Initializing variables

[1:02:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=3720s) Adding more levels

[1:05:40](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=3940s) Instantiating new ball

[1:08:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=4080s) Game Over when no more levels

[1:08:30](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=4110s) Loading New Level

[1:09:25](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=4165s) Delaying a State Transition

[1:12:40](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=4360s) Switch paddle (for ball direction control) and brick to 3D objects (Blender)

[1:22:25](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=4945s) Detecting when ball / life is lost with IsVisible

[1:27:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=5220s) Editing Levels - Overwriting Prefabs

[1:27:30](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=5250s) Ending Level when no blocks remain

[1:32:50](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=5570s) Waiting for AnyKey press

[1:35:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=5700s) Persistent Highscore

[1:39:50](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=5990s) Reset Level on Game Over

[1:42:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=6120s) Scrolling Star Field Background

[1:47:00](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=6420s) Unpacking and Overwriting Prefabs

[1:52:15](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=6735s) Outro / Ending

[1:52:40](https://www.youtube.com/watch?v=gCqOnchV4V0&list=PLuwFWsMA7zvYvg6THg9Gp77i0xbdEA6OH&index=3&t=6760s) On the topic of climate change