

Week 3, Video 1: Building Pong Arena

A Truly Unreal Curriculum

Overview

Lecture: **Week03_Video01_BuildingPongArena**

The objective of this lecture is to walk through students in building an arena for *Pong*.

Outcome

Students will have learned how to build the base layout for their pong arena.

Starting with a Blank Level

- Right-click in the Content Browser located below the Viewport and select 'New Folder' which is right at the top of the menu
- Rename the folder 'Maps' and double click to open the folder
- To create a blank level, right-click in your empty new folder and select 'Level' in the Create Basic Asset portion of the menu
- Name the new level 'Pong_MainGame' and hit enter to apply
- You'll notice in the viewport that the Starter Content, as well as Lighting, is gone and only a blank level remains in the World Outliner



Putting Down Floor Plane

- In the Place Actors Panel (Basic Tab), click and drag a Level into your world
- To reset its location to Global Zero (zero on all axes), go to the Details Panel with the Level selected and press the small yellow arrow icon in the top right corner of the Transform section
- Double click the plane in the Outliner to refocus it and press the E key to angle yourself above the plane

Placing A Directional Light

- In the Place Actors panel, click on the Lights tab and drag a Directional Light into your world and reset its location by pressing the same yellow arrow icon in the Details Panel
- A Directional Light replicates the Sun; It has infinite light coming from a direction and creates shadows as well, just like the Sun

Non Uniform Scaling

- To make the floor plane look more like the floor in a Pong arena, we need to adjust its dimensions.
- Press the floor and go to the Transform section in the Details Panel.
- Press the small lock icon located at the right edge of the Scale row. This will unlock non-uniform scaling
- The dimensions of your floor should be:

SCALE: X → 15.0 Y → 30.0 Z → 5.0



Putting Walls

- Drag and drop a cube into the viewport from the Place Actors Panel (Basic Tab)
- Press the yellow arrow icon as well as the lock icon in the Details Panel to reset its location. This will reset the location of the cube and unlock non-uniform scaling
- The dimensions of your cube should match the dimensions of your floor like so:

SCALE: **X** → 1.0 **Y** → 30.0 **Z** → 1.0

- Using the Move tool, place the wall at the edge of the floor. Moreover, drag the blue arrow up or down in such a way that the wall lies a little bit below the floor plane to remove any gaps between the wall and the floor

Duplicating Walls

- Go to the World Outliner beside the viewport and right-click on the cube that you transformed into a wall
- In the menu that appears, select Edit and Duplicate
- You could also select your cube and press **Control + W** to duplicate it
- The duplicated wall will appear right by the wall that you've placed already. Drag the duplicated wall using the Move Tool and place it on the opposite end of the floor plane exactly like the first wall

Placing Other Walls

- Duplicate one of the walls in the same way listed above and press the yellow arrow icon in the Details panel to reset its location
- We will need to adjust the dimensions of the wall using the Details panel like so:

SCALE: **X** → 15.0 **Y** → 1.0 **Z** → 1.0

- Using the Move Tool, drag the wall one of the open edges of the Floor plane
- Duplicate this wall and use the move tool to drag the duplicated wall to the last edge of the floor
- Adjust both of these walls to match the other two walls already placed



Adjusting Details

- Double-check the numbers of each wall in the Transform section in the Details Panel
- In case the walls do not match locations, adjust the **LOCATION** scales like so:

ArenaWall_Top	X → 800.0	Y → 0.0	Z → 40.0
ArenaWall_Bottom	X → -800.0	Y → 0.0	Z → 40.0
ArenaWall_Left	X → 0.0	Y → -1550.0	Z → 40.0
ArenaWall_Right	X → 0.0	Y → 1550.0	Z → 40.0
ArenaPlane_Floor	X → 0.0	Y → 0.0	Z → 0.0

Naming Conventions

- Naming conventions are very important to keep all of your game elements organized
- Rename the walls by going to the World Outliner and right-clicking on the wall of the name you want to change
- Select Edit on the menu that appears and then click Rename
- You can also rename the wall by selecting it and pressing **F2**

TIP: rename the wall in such a way that you won't have to explain it to another person.

- You can rename your walls using the names listed above in the Adjusting Details table
- Put all of the walls in a folder to keep it more organized. This can be done by right-clicking in the World Outliner and naming it Walls. Highlight the walls you've named and drag and drop them into the new folder.

