

Week 3, Video 2:



A Truly Unreal Curriculum

Overview

Lecture: **Week03_Video02_Paddles**

The objective of this lecture is to take students through material revision and adding other elements to their pong arenas.

Outcome

Students will apply knowledge from previous lessons in order to add lighting and pong paddles to their pong arenas as well as revising materials of existing objects.

Adding Sun and Sky Blueprint

- Go to the toolbar above the viewport and press Settings → Plugins
- This will open up a separate window. Type in 'Sun' using the search bar and the Sun Position Calculator Plugin will appear,
- Tick '*Enabled*' on this plugin. You may be prompted to restart Unreal Engine depending on the version you have. If so, restart Unreal Engine.
- Go to the Place Actors Panel → Lights tab and then drag and drop the blueprint called "*Sun and Sky*" into your world
- Reset its position using the yellow arrow icon in the Details Panel



Manipulating Sun and Sky Brightness

- Keep the Sun and Sky Blueprint selected and go to the Details Panel
- You can use the search bar to search the Directional Light component. If you aren't able to see it, make sure to drag the Components window downwards to reveal the components of the blueprint. Here you will find the Directional Light component.
- Click on the Directional Light component and go to the corresponding Light section that appears just below the Transform section in the Details Panel
- Change the **INTENSITY** of the Light to **10.0 LUX**

Manipulating Materials

- Add a Floor Plane from the Place Actors Panel and reset its location
- Keep this Floor Plane selected and go over to the Material section in the Details Panel
- Click on the drop-down menu and press the Create New Material option which is right at the top of the menu
- Create a new folder by right-clicking on the Save Asset As window that appears, name it Materials, and then name your new material "*MainGame_Ground_Material*" using the type box at the bottom and press enter
- Double click on the Sphere icon that represents your new material in the Materials section in the Details Panel. This will open up the Material Editor
- There will be a Palette located at the right of the Material Editor window. Search for the Constant3Vector node. Once you find it, click and drag it out into the Material Editor
- Double click on the node which will open up the Colour Picker window. Use it to choose a new colour for your material that will be applied on the Floor Plane. Make sure to increase the Brightness of your colour as well so that the material is visible in your world.
- Once you're done customizing your colour, Press Ok. Connect the output of the Constant3Vector node to the base Colour input of your MainGame_Ground_Material node using the data pins. Press Save and close the Material Editor



Applying Built-In Materials

- Select ArenaPlane_Floor using World Outliner and go to the Materials section in the Details Panel
- Open up the drop-down menu. Using the search bar in the menu, type in M_Basic_Floor and press the material that appears
- You could apply other existing materials as well if you want a different material on your ArenaPlane_Floor

Applying Multiple Materials

- To simultaneously apply a material to all the walls, hold down **Shift** on your keyboard and select each wall one by one until all of them are highlighted
- With all the walls selected, go to the Materials section in the Details Panel and apply a built-in material. Choose M_Metal_Steel if you want a metal material on your walls.



Placing Paddles and Ball

- Drag a cube from the Place Actors Panel and reset its position
- Using the Transform section in the Details Panel, move the Cube to the left. The Location values should be:

LOCATION: X → 0.0 Y → -1200.0 Z → 0.0

- Unlock the Uniform Scale lock and put in the following Scale values:

SCALE: X → 3.0 Y → 1.0 Z → 1.0

- Rename this paddle to P1_Paddle using the World Outliner or by selecting and pressing F2
- Duplicate the paddle using the World Outliner or by selecting and pressing Control + W and name it P2_Paddle
- We need to place this paddle exactly the same distance away as the first paddle to the right hence, your location values for the duplicated paddle should be:

LOCATION: X → 0.0 Y → 1200.0 Z → 0.0

- Use the Material Editor and the Constant3Vector Node to colour your paddles. Make sure to create two separate materials (p1_paddle_material and p2_paddle_material) with two distinct colours for the P1_Paddle and the P2_Paddle, preferably red and blue.
- Drag a cube from the Place Actors Panel to your world and reset its location. Name this cube '*Ball*'. This will be the ball for your Pong game.

