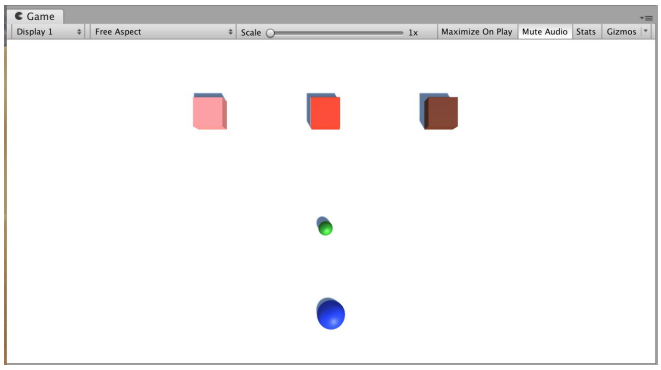
Unit 2 Lab

New Project with Primitives

Steps:

Example of progress by end of lab



Length: 60 minutes

Overview: You will create and set up the project that will soon transform into your very own Personal Project. For now, you will use “primitive” shapes (such as spheres, cubes, and planes) as placeholders for your objects so that you can add functionality as efficiently as possible without getting bogged down by graphics. To make it clear which object is which, you will also give each object a unique colored material.

Project Outcome: All key objects are in the scene as primitive objects with the camera positioned properly for your project type.

Learning Objectives: By the end of this lab, you will be able to:

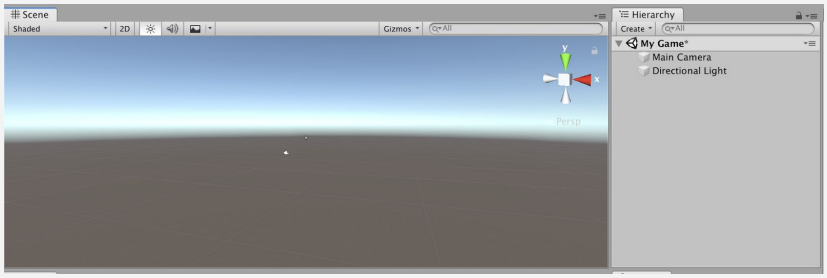
- Create a simple plane as a background for your project
- Position the camera, background, and player appropriately depending on the type of project you are creating
- Create primitive shapes to serve as placeholders for your gameobjects
- Create new colored materials and apply them to distinguish gameobjects

Step 1: Create a new Unity Project

Just like we did with the Prototype, the first thing we need to do is create a new blank project

1. **Open Unity Hub** and click **New**
2. **Name** the project "[Your Name] - Personal Project", select the correct **version of Unity**, make sure the location is set to the new "**Create with Code**" folder, and that you are using the **3D** template
3. Click **Create Project**, wait for Unity to open, then select your custom **Layout**
4. In the Project window, *Assets > Scenes*, rename "**SampleScene**" to "My Game"

- **Tip:** If there are multiple people with the same name using the computer, might want to add last initial
- **Don't worry:** There will just be a Main camera and directional light in there

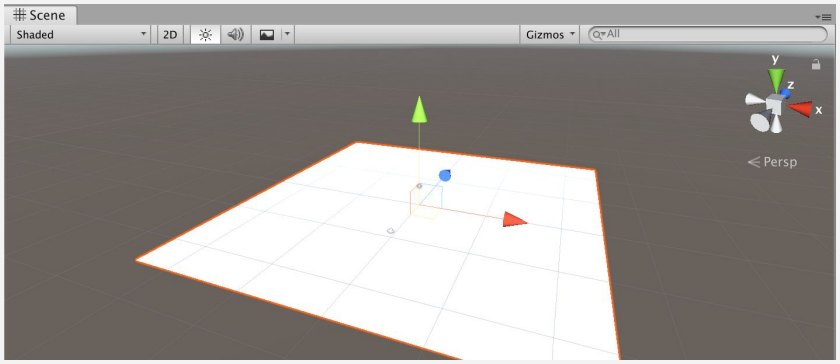


Step 2: Create a background plane

To orient yourself in the scene and not feel like you're floating around in mid-air, it's always good to start by adding a background / ground object

1. In the Hierarchy, *Right-click > 3D Object >* ***Plane*** to add a plane to your scene
2. In the Plane's Inspector, in the top-right of the Transform component, click on the ***Gear icon > Reset***
3. Increase the **XYZ scale** of the plane to (5, 1, 5)
4. Adjust your position in Scene view so you have a good view of the Plane

- **Explanation:** Working with **primitives** - these are simple objects that allow you to work faster

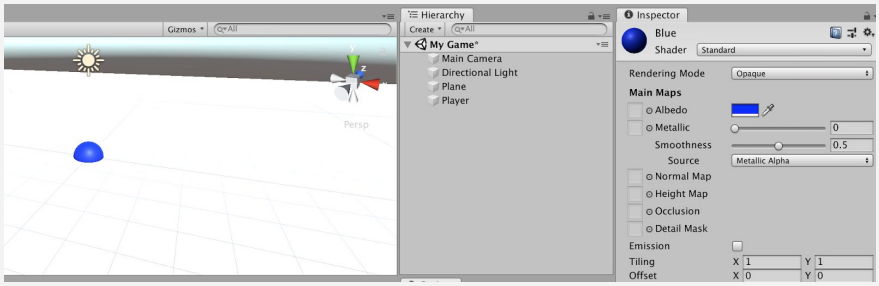


Step 3: Create primitive Player and material

Now that we have the empty plane object set up, we can add the star of the show: the player object

1. In the Hierarchy, *Right-click > 3D Object >* ***Sphere*****,** then rename it "Player"
2. In Assets, *Right-click > Create >* ***Folder*** named "Materials"
3. Inside "Materials", *Right-click > Create >* ***Material*** and rename it "Blue"
4. In Blue's Inspector, click on the **Albedo color** box and change it to a blue
5. **Drag** the material from your Assets onto the Player object

- **Tip**: Using primitives doesn't let graphics distract you and get in the way of core features,
- **Explanation:** Albedo is a reference to astronomical light reflection properties - but it's basically just the material's color
- **Warning:** Stick with blue right now so it's easy to follow - you'll be replacing it later



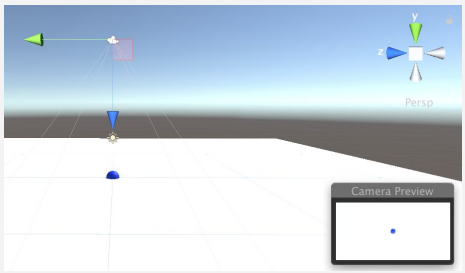
Step 4: Position camera based on project type

Now that we have the player in there, we need the best view of it, depending on our type of project

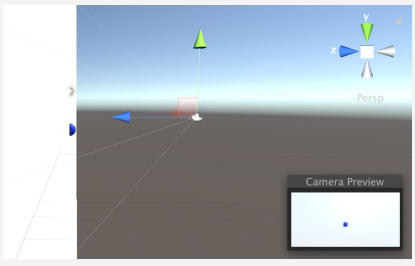
1. For a **top-down** game, position the camera at (0, 10, 0) directly over the player and rotate it 90 degrees on the **X axis**
2. For a **side-view** game, rotate the **Plane** by -90 degrees on the **X axis**
3. For a **third-person** view game, move the camera up on the **Y and Z axes** and increase its **rotation on the X axis**

- **Tip:** Side view looks like top view, but it'll make a big diff when you apply gravity
- **Don't worry:** You might not know exact view yet - just go with what's in your design doc

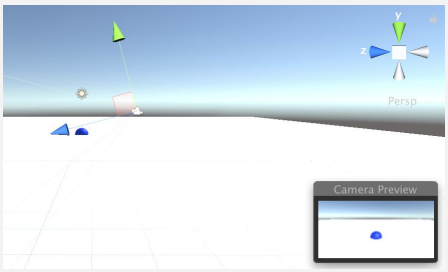
Top-down view



Side-view



Isometric view

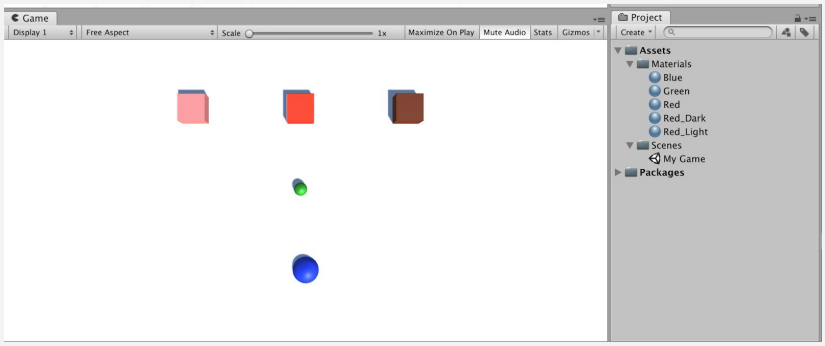


Step 5: Enemies, obstacles, and projectiles

Now that we know how to make primitives, let's go ahead and make one for each object in our project

1. In the Hierarchy, create new **Cubes**, **Spheres**, and **Capsules** for all other main objects, **renaming** them, **repositioning** them, and **scaling** them
2. In your Materials folder, create **new materials** for as many colors as you have unique objects, editing their color to match their name, then **apply** those materials to your objects
3. Position all of your objects in locations relative to each other that make sense

- **Tip:** If you plan on having variants of certain objects (e.g. multiple animals), create dark/light shades of the same color
- **Tip:** Good to make enemies red - easy if everyone uses the same conventions

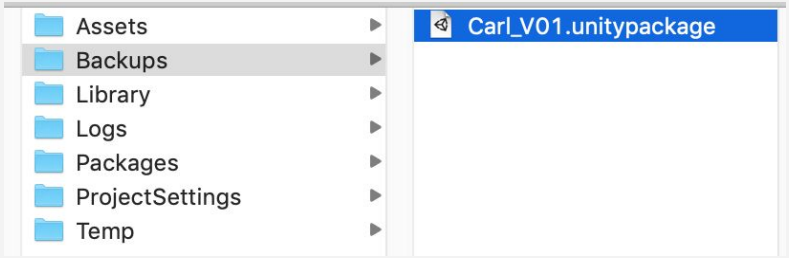


Step 6: Export a Unity Package backup file

Since we're going to be putting our hearts and souls into this project, it's always good to make backups

1. **Save** your Scene
2. In the Project window, Right-click on the *"Assets" folder* > ***Export Package***, then click Export
3. Create a **new "Backups" folder** in your Personal Project folder, then **save** it with your name and the version number (e.g. Carl_V0.1.unitypackage")

- **Explanation:** The "include dependencies" checkbox will include any files that are tied to / used by anything else we're exporting
- **Tip:** This is the same file type that you *imported* at the start of Prototype 1



Lesson Recap

New Progress	• New project for your Personal Project • Camera positioned and rotated based on project type • All key objects in scene with unique materials
New Concepts and Skills	• Primitives • Create new materials • Export Unity packages