Tutorial – Introduction to Unity

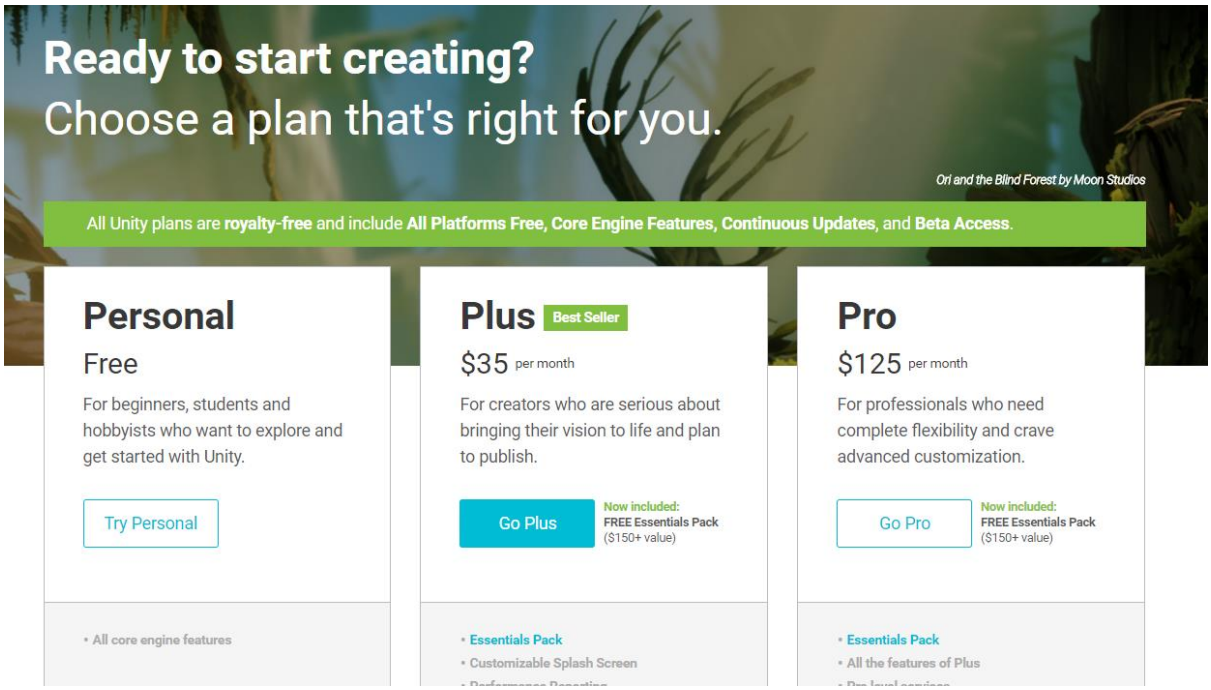
In this tutorial we're going to download and install Unity, take a look at the interface, and set up a simple scene by adding a few primitive objects to a new scene

Installing Unity:

If you are doing this course on-campus and already have Unity installed, you can skip this step. Your teacher will advise you on which version of Unity the school is using and how to ensure your project remains compatible if you want to work on it at home.

To get the latest version of Unity, download it from https://store.unity.com/

Choose the Free, Personal version.



We will be using Unity 2017, although if you already have Unity installed then any version later than Unity 5 will be fine.

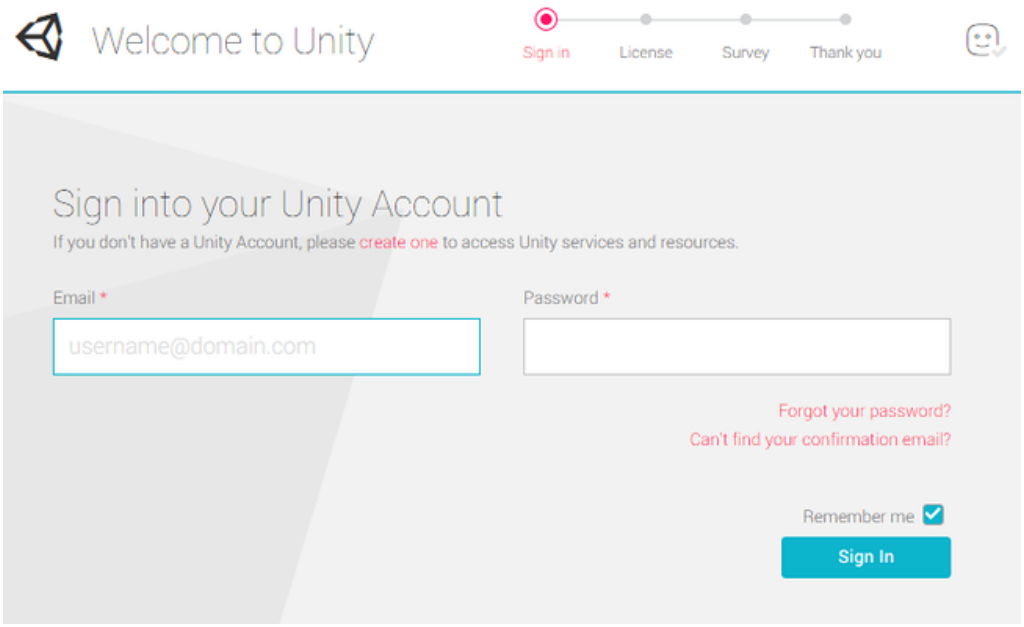
Minor versions are released at regular intervals, so if you already have Unity installed on your computer, check with your teacher to make sure you are using the latest version or a compatible version.

Use the installer and follow all the prompts.

Activating Unity:

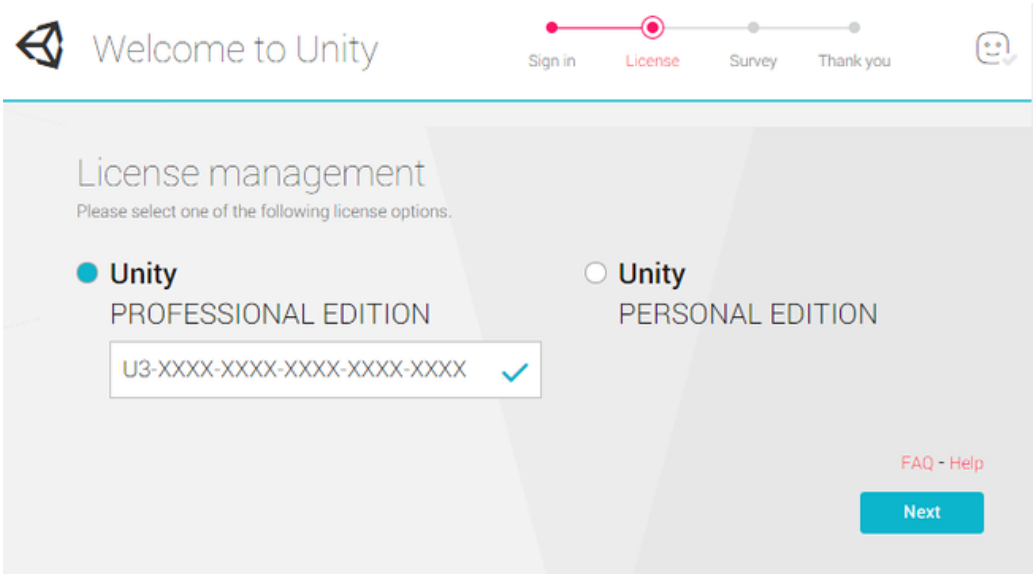
Fire up the Editor from your Applications folder on OS X or the shortcut in the Start Menu on Windows.

Firstly, you will encounter the 'Unity Account' window. Here you will need to enter your Unity Developer Network account credentials. (If you don't have an existing account or have forgotten your password, simply click the respective 'Create account' and 'Forgot your password?' button and links. Follow the onscreen prompts to create or retrieve your account.) Once your credentials are entered you can proceed by clicking 'OK'.

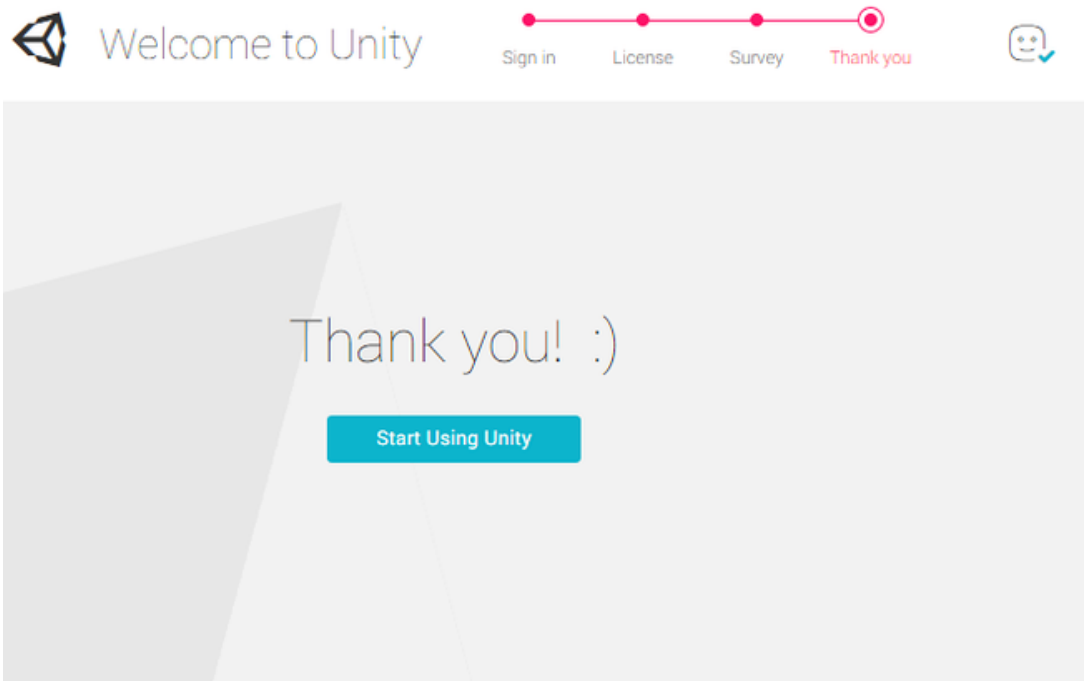


You will be faced with a window titled 'Choose a version of Unity'.

Select the Personal Edition and press 'Next'. This will activate the Free version of Unity.



You will now be able to proceed to the Unity Editor by clicking the 'Start using Unity' button.

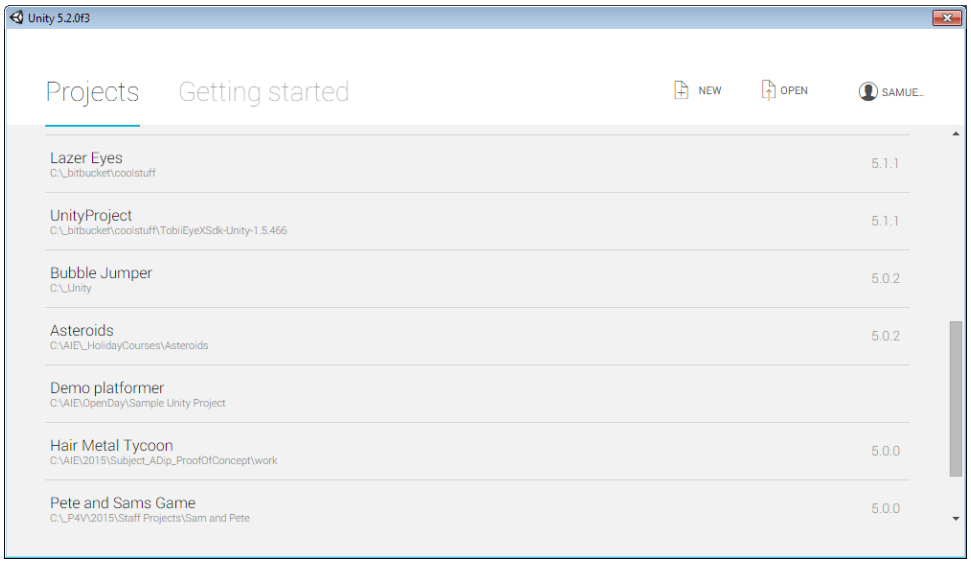


Creating a New Project:

Each game in Unity has its own project. Each project is then broken down into one or more scenes, each scene generally representing a level in the game.

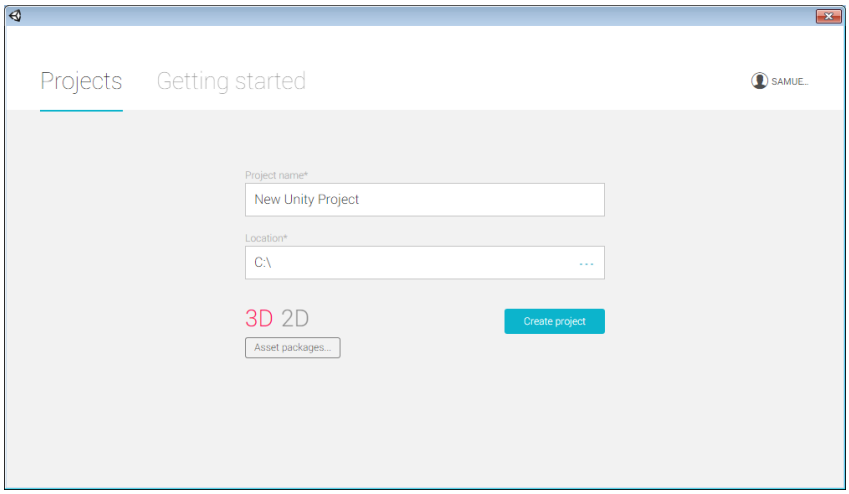
To create a new project:

1. When you start Unity, the following screen is displayed. From here you can select whether to open an existing project or create a new one.



If Unity is already opened, you can select **File** -> **New Project** to open this dialog.

2. The project wizard window appears. Name your project something meaningful, select a location for it to be stored in.

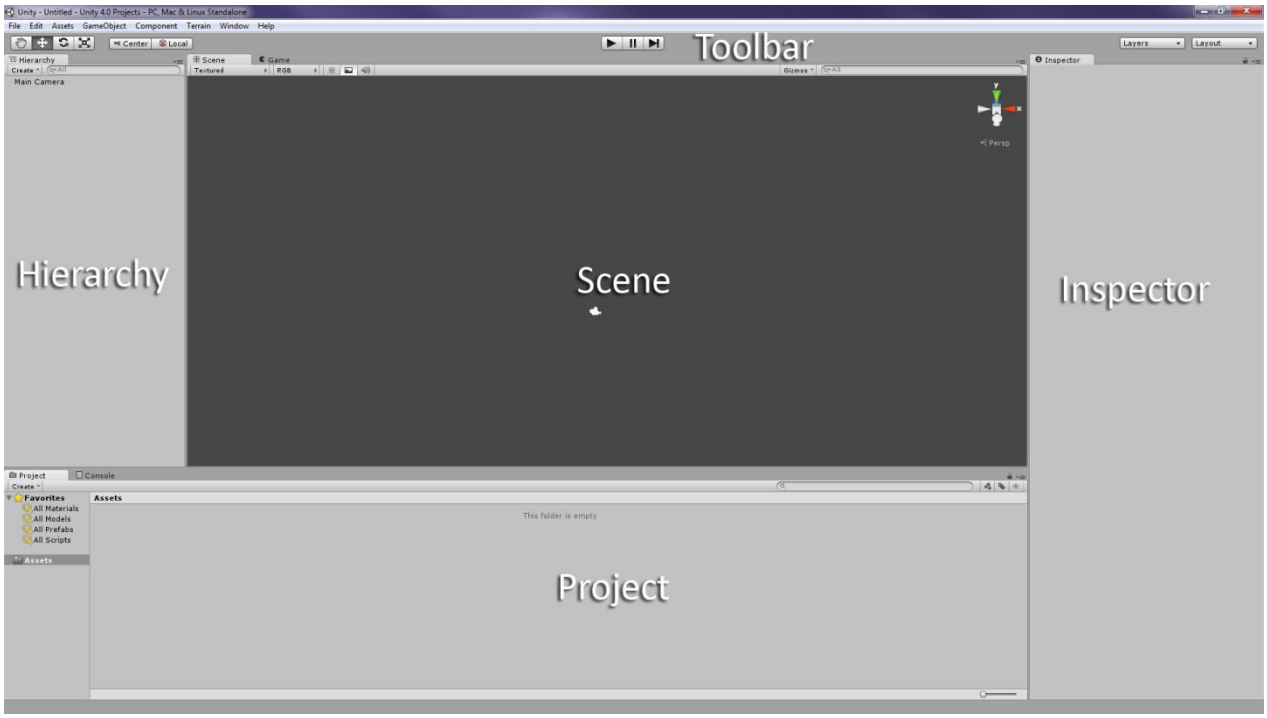


   We're going to make a 3D game, but there is actually very little difference between a 2D and 3D game in Unity. And you can change this setting inside your project.

   Select 3D and press 'Create Project'.

> The **Asset Packages** button will allow you to import a selection of pre-made assets into your project. These include sample 3D models, scripts, shaders, and other types of assets. We won't need any of these for now, but feel free to explore.

3. Unity will reload and you should have something that looks like this - each view is shown here:



4. Unity compromises of several different tabbed windows, called Views - you can drag and dock the individual windows around to customize your look.

5. Save your project by selecting **File** > **Save Project**.

The Scene View:

Unity provides us with two different views of our level - Scene and Game. Scene view is a sandbox where you can move the camera freely about and place new objects. Unity automatically switches to game view (which is what the player sees) when you run the game from inside the editor. You can freely switch between the two views, even when the game is running.

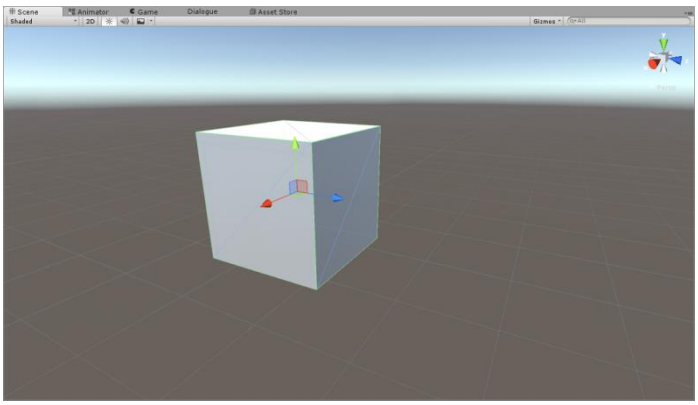
Controls

To move about in your scene, **right click** and while **holding** the mouse down use the **WASD keys** to move. You can hold down **SHIFT** to move faster. **Scrolling** the mouse wheel will zoom. Alternatively you can hold down **ALT and left click** to rotate and right click to pan.

You can also select an object in the Hierarchy and double click to immediately zoom to that object, or press **F** (for 'focus') while in the scene view.

Game Objects

Every object in a scene in Unity is called a GameObject. Typically each game object has some kind of 3D mesh attached to it, as well as things such as lights, sounds and scripts. Unity also provides a limited set of primitive objects that we can quickly create.

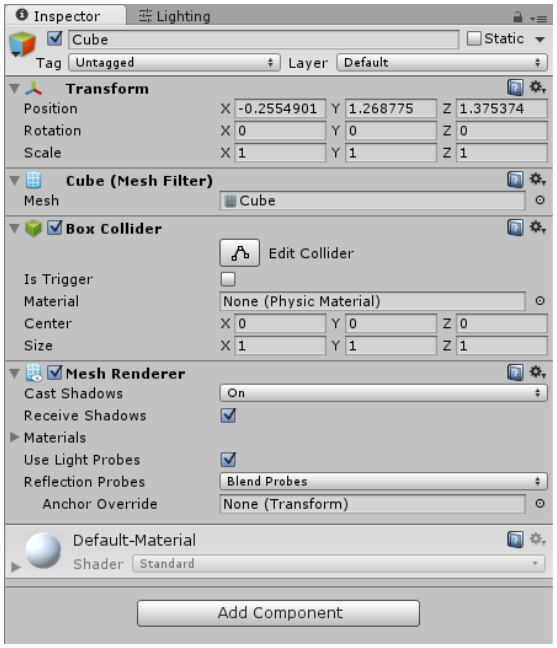


To create a cube for example, select **GameObject** > **3D Object** > **Cube**. A cube should appear in front of you in the scene.

The Inspector

The inspector is our primary way of setting up and configuring values on our game objects. By default the inspector window is on the right hand side of the screen. When you have an object selected, the inspector will allow you to change values relevant to that particular object.

It should look something like this if you made a cube:



Every object in Unity has a transform - this determines its position, rotation and scale in the game world. Try changing some of the values to see what happens to the object. You can also use also use the transform tools to move the object, covered in the next section.

In subsequent lessons, you'll learn how to add additional functionality to objects via the add component button.

The Toolbar:

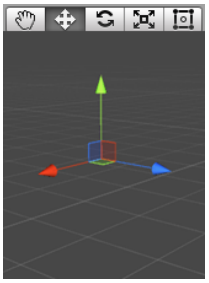
The toolbar compromises of 5 basic controls. Each set of controls relates to a different part of the editor.

The first set is your transform tools. They allow you to move, scale and rotate an object, much like using the inspector.

 The Hand Tool (Keyboard Shortcut: **Q**)

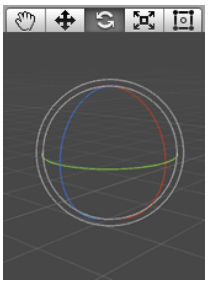
If you're using a one button mouse, then you might find this tool useful. When the hand tool is selected, hold **ALT** and click + drag your mouse to rotate your camera around the current pivot point. Hold **CTRL** and click + drag to zoom the camera.

The Translate Tool (Keyboard Shortcut: **W**)



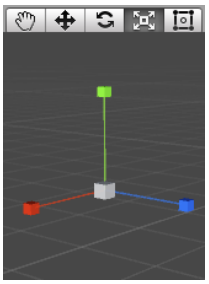
This allows you to move your objects around in the scene view. Click on one of the arrows to drag along that axis, or click on one of the planes in the middle to drag along that plane.

The Rotate Tool (Keyboard Shortcut: **E**)



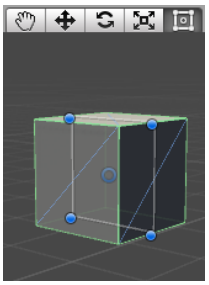
The rotate tool allows you to rotate your object around its pivot point. Click and drag on an axis to rotate around that axis, or drag elsewhere to free rotate.

The Scale Tool (Keyboard Shortcut: **R**)



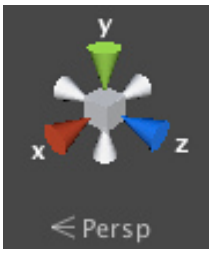
This tool allows you to scale an object on one axis or on all 3 axes at once.

The Resize Tool (Keyboard Shortcut: **T**)



This is a new tool added in Unity 5. When this button is selected you will see a rectangle surrounding your GameObject in the scene view. Dragging any of the points of this rectangle will resize your GameObject. The axis that is resized will depend on which direction your camera is facing

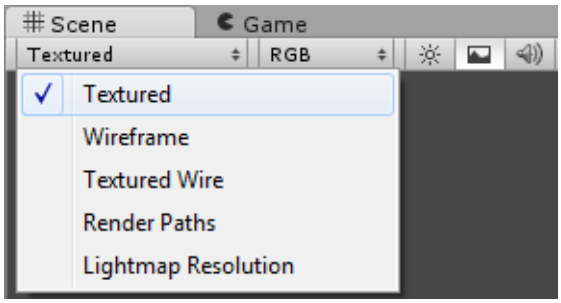
The Scene Gizmo:



In the upper right corner of the scene view is a little gizmo which displays the scene camera's current orientation, showing it in relation to the game world's axes.

You can click on one of the axes to quickly orient the camera to that axis. Click on the box in the middle to swap between Perspective and Orthographic projection.

Wireframe and Textured View



To the top left corner of the scene view is a drop down menu that you can use to render your scene in a different view.

The Game View:

The game view is rendered from the cameras inside your level. It represents what the player would see if he or she were to play your game. Each scene comes with a main camera automatically, but you can add extra ones if you desire.

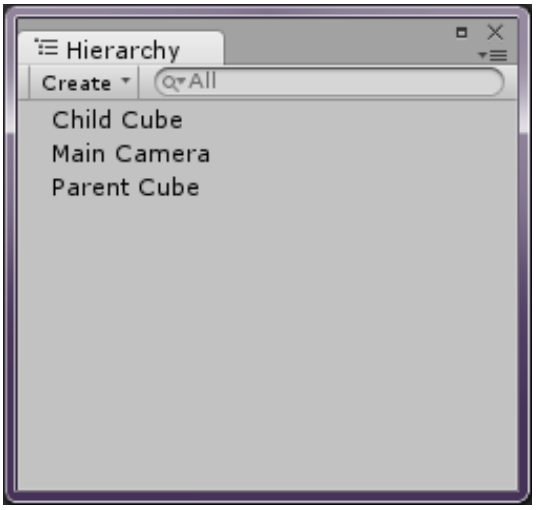
There are three buttons that let you control the Game View.

When you press the play button (first button on the left) Unity will automatically switch to the Game View. You can switch back to the scene view at any time, **however any changes you make to your scene and any objects are temporary and the original values will be reset once you stop the game from running**. This allows you to make temporary changes and see immediate feedback when playing your game.

The second button will pause your game, and the third will let you step through your game one frame at a time while the game is paused.

Press the play button again to stop the game running, once again remembering that changes made to the scene will revert back to what they were before the game ran.

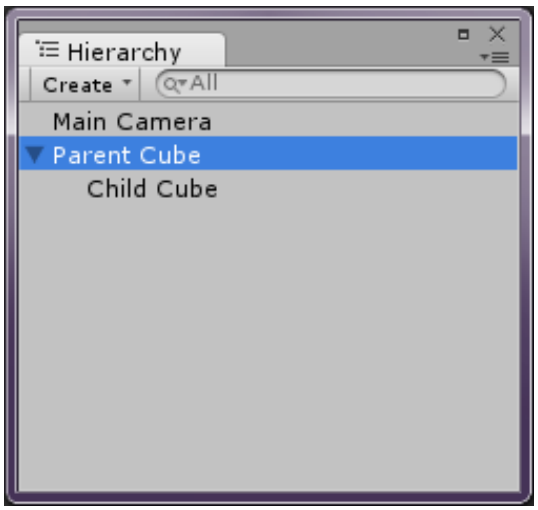
The Hierarchy View:



The hierarchy lists all of the game objects currently in your scene. As you add or delete objects, you will see their names being added to or removed from the hierarchy.

You can select objects in the hierarchy and drag them over another to make the dragged object a **child** object. Child objects inherit the position and rotation of their parent. If an object is a parent, a foldout arrow will appear to show or hide the children objects.

The pictures on the right show un-parented and parented objects.



If you move or rotate the parent object, the child object will move along with it, but will keep the **same relative distance** from the parent. You can adjust the child object's position and rotation without changing its parent. This is called the **local transform** of the child object.

Where to Now?

The best way to get familiar with Unity is to mess around and see what happens.

Take the time to familiarise yourself with the various tools and views in Unity. Try memorising the shortcuts for the various

tools - they will make using your experience using Unity much more productive!

Try creating a simple scene with some basic game objects.

Enjoy Unity!