# Unit 2 – Lesson 1. Introduction to Animation – Legacy Garden Gates Animations

**Aim:**

* How does Unity handle animation?
* What is Legacy Animation and how do we use Legacy Animation in game programming?

**Objectives:** After the lesson, students will be able to:

* Obtain understanding of animated assets in Unity game development
* Import animated assets into Unity project
* Set up Legacy animation in Unity and write C# scripts to trigger and stop animation

**CLASS PROCEDURE:**

***Do Now:***

1. Go to the public drive, M:\Qiu1\2019 - 20 Game Programming\Unit 2. Introduction to Animation, and copy the zipped file named “Chapter 7 Assets” to your USB flash drive, and unzip the file.
2. Go to \Chapter 7 Assets\Garden Defender\Assets folder, look for a scene named “GardenSetUp”. Open the scene in Unity. Run the scene. What animation do you observe?

***Class Discussion / Presentation:***

1. What is animation?
2. What is animated asset and how can we create animated assets for our games?

***Pair – sharing Activity#2:*** Let’s explore and set up some simple animation!

1. Select the GardenGates object in the Animated Assets folder.
2. In the Inspector menu, select the Rig section.
3. For Animation Type, choose Legacy and click Apply.
4. Select the Animation tab. The default animation from the object, Take 001, is already loaded as an animation clip.
5. Click Play to see the animation.

***Please note:*** The doors start out closed and are fully open at frame 30. At frame 35, they start to close and are fully closed at frame 65. When you drag the time slider in either the time bar or the Preview window, the time (in seconds) of the current clip segment is shown with the remainder in frames. When Unity imports a file, it keeps track of the frames per second used in the application it was animated in. The assets you just imported were animated using 30 frames per second!

***Pair – sharing Activity #3 – More GardenGates:***

1. Rename Take 001 to ***door open***
2. Just below the time line, se the End value to 30.
3. Click the plus sign at the lower right of the Clip section to add a new clip.
4. Name the new clip door close.
5. Set its Start value to 35 and leave its End value at 65.
6. Click Apply to finish the setup.

***Important: Always name your clips with unique names!***

***Pair – sharing Activity #4 – Add collider to the Garden Gates:***

1. Drag the GardenGates into the scene, and position them at the center of the Gateway object by switching the view to Wireframe and top, ortho.
2. Return the Scene view to “perspective” and “Textured”
3. Click Play, and watch the door open animation play on start up.
4. Stop Play mode.
5. Select the GardenGates, and expand its hierarchy.
6. Uncheck Play Automatically.
7. In the Hierarchy View, add a Box collider to Gate 1, Gate 2, and the GardenGates.
8. Adjust the GardenGates collider until it fills the opening and protrudes slightly beyond the openning.
9. Turn on the GardenGates collider component’s **Is Trigger** parameter.
10. Create a new folder in the Assets folder, and name it Game Scripts.
11. Create a new C# script in it and name it SensorDoors.
12. Open the script and add the following two variables below the class declaration:

public AnimationClip clipOpen;

public AnimationClip clipClose;

1. Below the Update(), add an OnTriggerEnter():

void OnTriggerEnter(Collider defender) {

if (defender.gameObject.tag == “Player”) {

animation.Play(clipOpen.name);

}

}

1. Duplicate the OnTriggerEnter code, and adjust it for an OnTriggerExit():

void OnTriggerExit(Collider defender) {

if (defender.gameObject.tag == “Player”) {

animation.Play(clipClose.name);

}

}

Note: The script will go on the GardenGates object that also contains the Animation component, so you can trigger the animation clip you want with only the component name and the Play() function. The clip is actually accessed by name, so you must use .name.

1. Save the script, and drag it onto the GardenGates object.
2. Change the bench’s tag to Player from the drop-down Tag list (we did this before in the classwork for the rolling sphere picking up small cubes)
3. Remove the ColliderTests script from the StoneGardenBench object.
4. Select the GardenGates object, and load the two animation clips into the Clip Open and Clip Close parameters.
5. Set the speed parameter on the bench to about 3 to ensure that the bench won’t get stuck on the walkway.
6. Click Play, and watch as the door open to let the bench through and close after it leaves.