# Phase 1

* This is a top-down isometric style shooter game
* [00:08 - 00:10](https://www.youtube.com/watch?t=8&v=_lP6epjupJs)

You are a boy who is

* [00:10 - 00:13](https://www.youtube.com/watch?t=10&v=_lP6epjupJs)

having a dream that all of his toys have come to life.

* [00:14 - 00:18](https://www.youtube.com/watch?t=14&v=_lP6epjupJs)

You run around, you shoot zombie teddies and other things,

* [00:19 - 00:23](https://www.youtube.com/watch?t=19&v=_lP6epjupJs)

score points and eventually meet your demise.

* [00:24 - 00:25](https://www.youtube.com/watch?t=24&v=_lP6epjupJs)

So that's what we're going to make

* [00:25 - 00:29](https://www.youtube.com/watch?t=25&v=_lP6epjupJs)

and we're going to be learning about the editor

* [00:29 - 00:31](https://www.youtube.com/watch?t=29&v=_lP6epjupJs)

from putting together a scene

* [00:31 - 00:34](https://www.youtube.com/watch?t=31&v=_lP6epjupJs)

implementing animated characters, AI,

* [00:35 - 00:39](https://www.youtube.com/watch?t=35&v=_lP6epjupJs)

some of the new UI and lots of other stuff.

* [00:39 - 00:40](https://www.youtube.com/watch?t=39&v=_lP6epjupJs)

It's a very uplifting game,

* [00:40 - 00:42](https://www.youtube.com/watch?t=40&v=_lP6epjupJs)

you can't win, you can only eventually lose.

* [00:42 - 00:45](https://www.youtube.com/watch?t=42&v=_lP6epjupJs)

So that's the way we prefer to make them.

* [00:45 - 00:49](https://www.youtube.com/watch?t=45&v=_lP6epjupJs)

The very first thing you'll notice is that on my screen

* [00:49 - 00:52](https://www.youtube.com/watch?t=49&v=_lP6epjupJs)

I have the project open.

* [00:52 - 00:54](https://www.youtube.com/watch?t=52&v=_lP6epjupJs)

We don't want you to have the project open

* [00:54 - 00:56](https://www.youtube.com/watch?t=54&v=_lP6epjupJs)

at all, what we want you to do is to

* [00:56 - 00:58](https://www.youtube.com/watch?t=56&v=_lP6epjupJs)

make your own new scene and we're going to

* [00:58 - 00:59](https://www.youtube.com/watch?t=58&v=_lP6epjupJs)

put this project together.

* [00:59 - 01:02](https://www.youtube.com/watch?t=59&v=_lP6epjupJs)

So if anyone has got the scene open

* [01:02 - 01:04](https://www.youtube.com/watch?t=62&v=_lP6epjupJs)

we don't want you to do that, we want you to make

* [01:04 - 01:06](https://www.youtube.com/watch?t=64&v=_lP6epjupJs)

a brand new scene.

* [01:06 - 01:08](https://www.youtube.com/watch?t=66&v=_lP6epjupJs)

So first of all we're going to go to File - New Scene.

* [01:08 - 01:10](https://www.youtube.com/watch?t=68&v=_lP6epjupJs)

Then what we want you guys to do, to make sure that

* [01:10 - 01:12](https://www.youtube.com/watch?t=70&v=_lP6epjupJs)

everyone's kind of on the same page we're going to ask

* [01:12 - 01:14](https://www.youtube.com/watch?t=72&v=_lP6epjupJs)

you to setup the editor in the same

* [01:14 - 01:16](https://www.youtube.com/watch?t=74&v=_lP6epjupJs)

style that we have.

* [01:16 - 01:18](https://www.youtube.com/watch?t=76&v=_lP6epjupJs)

If you're comfortable with Unity, if you've used Unity before

* [01:18 - 01:20](https://www.youtube.com/watch?t=78&v=_lP6epjupJs)

and you prefer to work in your layout

* [01:20 - 01:23](https://www.youtube.com/watch?t=80&v=_lP6epjupJs)

of the editor that's totally cool, you can keep that.

* [01:23 - 01:25](https://www.youtube.com/watch?t=83&v=_lP6epjupJs)

But if you're new to Unity what we'd like you to do

* [01:25 - 01:28](https://www.youtube.com/watch?t=85&v=_lP6epjupJs)

is to choose the layout menu in the upper right

* [01:29 - 01:31](https://www.youtube.com/watch?t=89&v=_lP6epjupJs)

and choose 2 by 3.

* [01:32 - 01:35](https://www.youtube.com/watch?t=92&v=_lP6epjupJs)

So layout drop down in the upper right and choose 2 by 3.

* [01:35 - 01:38](https://www.youtube.com/watch?t=95&v=_lP6epjupJs)

That would get you a style that gets you something like this.

* [01:38 - 01:41](https://www.youtube.com/watch?t=98&v=_lP6epjupJs)

Then what we'd like you to do is to drag the project panel

* [01:41 - 01:43](https://www.youtube.com/watch?t=101&v=_lP6epjupJs)

and drop it below the hierarchy.

* [01:43 - 01:45](https://www.youtube.com/watch?t=103&v=_lP6epjupJs)

You'll note that when you drag the title tabs

* [01:45 - 01:47](https://www.youtube.com/watch?t=105&v=_lP6epjupJs)

of the panels around they will dock

* [01:47 - 01:48](https://www.youtube.com/watch?t=107&v=_lP6epjupJs)

in to different spaces.

* [01:48 - 01:50](https://www.youtube.com/watch?t=108&v=_lP6epjupJs)

Drop that below the hierarchy

* [01:50 - 01:53](https://www.youtube.com/watch?t=110&v=_lP6epjupJs)

and then you can just drag up the division between those two,

* [01:53 - 01:55](https://www.youtube.com/watch?t=113&v=_lP6epjupJs)

maybe drag this over a little

* [01:55 - 01:57](https://www.youtube.com/watch?t=115&v=_lP6epjupJs)

and then you should be all set.

* [01:57 - 01:59](https://www.youtube.com/watch?t=117&v=_lP6epjupJs)

So hopefully everyone's got a view like that?

* [01:59 - 02:01](https://www.youtube.com/watch?t=119&v=_lP6epjupJs)

Then what I usually like to do is

* [02:01 - 02:03](https://www.youtube.com/watch?t=121&v=_lP6epjupJs)

with the project panel, because we don't really need

* [02:03 - 02:06](https://www.youtube.com/watch?t=123&v=_lP6epjupJs)

to use the thumbnails particularly

* [02:06 - 02:08](https://www.youtube.com/watch?t=126&v=_lP6epjupJs)

there's a slider at the bottom

* [02:08 - 02:10](https://www.youtube.com/watch?t=128&v=_lP6epjupJs)

which will change to list view when dragged

* [02:10 - 02:12](https://www.youtube.com/watch?t=130&v=_lP6epjupJs)

all the way over to the left.

* [02:13 - 02:15](https://www.youtube.com/watch?t=133&v=_lP6epjupJs)

So if we drag it over to the left you're going to see

* [02:15 - 02:17](https://www.youtube.com/watch?t=135&v=_lP6epjupJs)

exactly the same as what I have

* [02:17 - 02:19](https://www.youtube.com/watch?t=137&v=_lP6epjupJs)

on my screen here.

* [02:19 - 02:22](https://www.youtube.com/watch?t=139&v=_lP6epjupJs)

We are working with Unity 4.6

* [02:22 - 02:23](https://www.youtube.com/watch?t=142&v=_lP6epjupJs)

but right now what we'd like you to do is to go to

* [02:23 - 02:25](https://www.youtube.com/watch?t=143&v=_lP6epjupJs)

File - Save Scene As

* [02:25 - 02:27](https://www.youtube.com/watch?t=145&v=_lP6epjupJs)

and we will ask you to put this in

* [02:27 - 02:29](https://www.youtube.com/watch?t=147&v=_lP6epjupJs)

to the Scenes folder.

* [02:29 - 02:31](https://www.youtube.com/watch?t=149&v=_lP6epjupJs)

We don't want you to use the completed

* [02:31 - 02:33](https://www.youtube.com/watch?t=151&v=_lP6epjupJs)

assets version of anything

* [02:33 - 02:35](https://www.youtube.com/watch?t=153&v=_lP6epjupJs)

just use the

* [02:35 - 02:37](https://www.youtube.com/watch?t=155&v=_lP6epjupJs)

Scenes folder that's in the

* [02:37 - 02:39](https://www.youtube.com/watch?t=157&v=_lP6epjupJs)

root of the project.

* [02:39 - 02:42](https://www.youtube.com/watch?t=159&v=_lP6epjupJs)

And we're going to call this Level 01.

* [02:44 - 02:47](https://www.youtube.com/watch?t=164&v=_lP6epjupJs)

So save it as Level 01 in the Scenes folder.

* [02:49 - 02:51](https://www.youtube.com/watch?t=169&v=_lP6epjupJs)

When you've done that successfully you should see the name of

* [02:51 - 02:54](https://www.youtube.com/watch?t=171&v=_lP6epjupJs)

your scene up at the top of the interface.

* [02:54 - 02:56](https://www.youtube.com/watch?t=174&v=_lP6epjupJs)

Okay so the next thing we're going to do is

* [02:56 - 02:59](https://www.youtube.com/watch?t=176&v=_lP6epjupJs)

setup the environment, so I'm just going to show you that first.

* [03:00 - 03:02](https://www.youtube.com/watch?t=180&v=_lP6epjupJs)

So a prefab, just to reiterate

* [03:02 - 03:04](https://www.youtube.com/watch?t=182&v=_lP6epjupJs)

how this stuff works, a prefab is our way of

* [03:04 - 03:07](https://www.youtube.com/watch?t=184&v=_lP6epjupJs)

providing or saving a game object

* [03:07 - 03:08](https://www.youtube.com/watch?t=187&v=_lP6epjupJs)

in to the project.

* [03:08 - 03:10](https://www.youtube.com/watch?t=188&v=_lP6epjupJs)

You can do that for a number of different reasons

* [03:10 - 03:13](https://www.youtube.com/watch?t=190&v=_lP6epjupJs)

and we'll be saving prefabs in order to

* [03:13 - 03:15](https://www.youtube.com/watch?t=193&v=_lP6epjupJs)

spawn them in to the game later with the enemies.

* [03:15 - 03:17](https://www.youtube.com/watch?t=195&v=_lP6epjupJs)

But for the purpose of the environment

* [03:17 - 03:19](https://www.youtube.com/watch?t=197&v=_lP6epjupJs)

we prepared the model

* [03:19 - 03:22](https://www.youtube.com/watch?t=199&v=_lP6epjupJs)

and a number of collider and other elements.

* [03:22 - 03:24](https://www.youtube.com/watch?t=202&v=_lP6epjupJs)

If you look in the prefabs folder you will

* [03:24 - 03:26](https://www.youtube.com/watch?t=204&v=_lP6epjupJs)

find a prefab called environment.

* [03:26 - 03:29](https://www.youtube.com/watch?t=206&v=_lP6epjupJs)

Prefabs are represented by this blue cube icon.

* [03:30 - 03:32](https://www.youtube.com/watch?t=210&v=_lP6epjupJs)

All you need to do is to drag and drop that up

* [03:32 - 03:34](https://www.youtube.com/watch?t=212&v=_lP6epjupJs)

in to the hierarchy.

* [03:34 - 03:36](https://www.youtube.com/watch?t=214&v=_lP6epjupJs)

So just to remind you, the hierarchy and the scene

* [03:36 - 03:40](https://www.youtube.com/watch?t=216&v=_lP6epjupJs)

are intrinsically linked, anything that's in the scene

* [03:40 - 03:43](https://www.youtube.com/watch?t=220&v=_lP6epjupJs)

is therefore in the hierarchy and visa versa.

* [03:44 - 03:47](https://www.youtube.com/watch?t=224&v=_lP6epjupJs)

Just make sure that you've got a decent view of this level.

* [03:47 - 03:48](https://www.youtube.com/watch?t=227&v=_lP6epjupJs)

You can use the hand tool of course

* [03:48 - 03:50](https://www.youtube.com/watch?t=228&v=_lP6epjupJs)

up in the upper left

* [03:50 - 03:52](https://www.youtube.com/watch?t=230&v=_lP6epjupJs)

and use Control to zoom in and out

* [03:52 - 03:55](https://www.youtube.com/watch?t=232&v=_lP6epjupJs)

and Alt to rotate around.

* [03:55 - 03:57](https://www.youtube.com/watch?t=235&v=_lP6epjupJs)

We don't need to worry too much about the view

* [03:57 - 03:59](https://www.youtube.com/watch?t=237&v=_lP6epjupJs)

that you're looking at in the scene view

* [03:59 - 04:01](https://www.youtube.com/watch?t=239&v=_lP6epjupJs)

because we're going to setup the camera to look at

* [04:01 - 04:02](https://www.youtube.com/watch?t=241&v=_lP6epjupJs)

particular part of that later.

* [04:02 - 04:04](https://www.youtube.com/watch?t=242&v=_lP6epjupJs)

What we're just going to check is that we

* [04:04 - 04:07](https://www.youtube.com/watch?t=244&v=_lP6epjupJs)

positioned the environment at the origin.

* [04:07 - 04:09](https://www.youtube.com/watch?t=247&v=_lP6epjupJs)

So with the environment selected in the transform

* [04:09 - 04:11](https://www.youtube.com/watch?t=249&v=_lP6epjupJs)

component you should see the position is at

* [04:11 - 04:13](https://www.youtube.com/watch?t=251&v=_lP6epjupJs)

(0, 0, 0).

* [04:13 - 04:16](https://www.youtube.com/watch?t=253&v=_lP6epjupJs)

If it's not just fill that in, (0, 0, 0)

* [04:16 - 04:18](https://www.youtube.com/watch?t=256&v=_lP6epjupJs)

or go to the cog icon in the

* [04:18 - 04:21](https://www.youtube.com/watch?t=258&v=_lP6epjupJs)

upper right and choose Reset Position.

* [04:22 - 04:24](https://www.youtube.com/watch?t=262&v=_lP6epjupJs)

Then once we've done that we are also going to drag

* [04:24 - 04:27](https://www.youtube.com/watch?t=264&v=_lP6epjupJs)

in the Lights prefab.

* [04:27 - 04:30](https://www.youtube.com/watch?t=267&v=_lP6epjupJs)

Lights is in the prefabs folder,

* [04:30 - 04:32](https://www.youtube.com/watch?t=270&v=_lP6epjupJs)

you simply need to drag that in to

* [04:32 - 04:35](https://www.youtube.com/watch?t=272&v=_lP6epjupJs)

the scene and it should light your scene.

* [04:35 - 04:37](https://www.youtube.com/watch?t=275&v=_lP6epjupJs)

With the lights we don't need to worry about

* [04:37 - 04:40](https://www.youtube.com/watch?t=277&v=_lP6epjupJs)

positioning particularly because it's directional lights.

* [04:40 - 04:43](https://www.youtube.com/watch?t=280&v=_lP6epjupJs)

With directional lights you only need to worry about the rotation.

* [04:43 - 04:45](https://www.youtube.com/watch?t=283&v=_lP6epjupJs)

So if I just show you those briefly you can see that these

* [04:45 - 04:47](https://www.youtube.com/watch?t=285&v=_lP6epjupJs)

directional lights are pointing in

* [04:47 - 04:50](https://www.youtube.com/watch?t=287&v=_lP6epjupJs)

certain rotations and they're going to affect

* [04:50 - 04:52](https://www.youtube.com/watch?t=290&v=_lP6epjupJs)

anything in the scene, you don't need to worry about

* [04:52 - 04:54](https://www.youtube.com/watch?t=292&v=_lP6epjupJs)

where they're positioned.

* [04:54 - 04:56](https://www.youtube.com/watch?t=294&v=_lP6epjupJs)

The way this game is going to work is

* [04:56 - 04:58](https://www.youtube.com/watch?t=296&v=_lP6epjupJs)

we're going to have a camera that's

* [04:58 - 05:00](https://www.youtube.com/watch?t=298&v=_lP6epjupJs)

looking down on the scene.

* [05:00 - 05:02](https://www.youtube.com/watch?t=300&v=_lP6epjupJs)

And what we need to do in order to track

* [05:02 - 05:04](https://www.youtube.com/watch?t=302&v=_lP6epjupJs)

the player around and also to be able to

* [05:04 - 05:06](https://www.youtube.com/watch?t=304&v=_lP6epjupJs)

shoot is to use something called

* [05:06 - 05:08](https://www.youtube.com/watch?t=306&v=_lP6epjupJs)

a ray cast which is going to create an

* [05:08 - 05:11](https://www.youtube.com/watch?t=308&v=_lP6epjupJs)

invisible line from the camera to the floor.

* [05:11 - 05:13](https://www.youtube.com/watch?t=311&v=_lP6epjupJs)

But we've got a very inconsistent floor,

* [05:13 - 05:16](https://www.youtube.com/watch?t=313&v=_lP6epjupJs)

we've got a number of different environment objects

* [05:16 - 05:19](https://www.youtube.com/watch?t=316&v=_lP6epjupJs)

such as these stools, the Lego bricks,

* [05:19 - 05:21](https://www.youtube.com/watch?t=319&v=_lP6epjupJs)

the broken train

* [05:21 - 05:24](https://www.youtube.com/watch?t=321&v=_lP6epjupJs)

and all these different things, so we don't want to worry about

* [05:24 - 05:26](https://www.youtube.com/watch?t=324&v=_lP6epjupJs)

ray casting on to those at different heights

* [05:26 - 05:28](https://www.youtube.com/watch?t=326&v=_lP6epjupJs)

so to make things a lot simpler

* [05:28 - 05:30](https://www.youtube.com/watch?t=328&v=_lP6epjupJs)

what we're doing is we're going to add

* [05:30 - 05:32](https://www.youtube.com/watch?t=330&v=_lP6epjupJs)

in a plane quad.

* [05:32 - 05:34](https://www.youtube.com/watch?t=332&v=_lP6epjupJs)

So what I'd like you guys to do is to go to Game Object

* [05:34 - 05:37](https://www.youtube.com/watch?t=334&v=_lP6epjupJs)

3D Object and Quad.

* [05:40 - 05:42](https://www.youtube.com/watch?t=340&v=_lP6epjupJs)

What you'll notice is this creates a very small

* [05:42 - 05:45](https://www.youtube.com/watch?t=342&v=_lP6epjupJs)

1 by 1 quad right in the centre

* [05:45 - 05:47](https://www.youtube.com/watch?t=345&v=_lP6epjupJs)

of your game.

* [05:47 - 05:50](https://www.youtube.com/watch?t=347&v=_lP6epjupJs)

We're going to reset that to (0,0,0)

* [05:51 - 05:53](https://www.youtube.com/watch?t=351&v=_lP6epjupJs)

in the transform component

* [05:53 - 05:56](https://www.youtube.com/watch?t=353&v=_lP6epjupJs)

so make sure the position of your quad is at 0.

* [05:59 - 06:01](https://www.youtube.com/watch?t=359&v=_lP6epjupJs)

And we're going to rotate it by

* [06:01 - 06:03](https://www.youtube.com/watch?t=361&v=_lP6epjupJs)

90 degrees in the X axis.

* [06:05 - 06:07](https://www.youtube.com/watch?t=365&v=_lP6epjupJs)

Finally we want this to cover the entire

* [06:07 - 06:09](https://www.youtube.com/watch?t=367&v=_lP6epjupJs)

game level so we're going to

* [06:09 - 06:11](https://www.youtube.com/watch?t=369&v=_lP6epjupJs)

scale this by 100 in X

* [06:11 - 06:13](https://www.youtube.com/watch?t=371&v=_lP6epjupJs)

and 100 in Y.

* [06:13 - 06:15](https://www.youtube.com/watch?t=373&v=_lP6epjupJs)

We're going to name this Floor.

* [06:16 - 06:19](https://www.youtube.com/watch?t=376&v=_lP6epjupJs)

So rename from quad

* [06:20 - 06:21](https://www.youtube.com/watch?t=380&v=_lP6epjupJs)

to Floor.

* [06:22 - 06:24](https://www.youtube.com/watch?t=382&v=_lP6epjupJs)

So the next thing we're going to do is

* [06:24 - 06:26](https://www.youtube.com/watch?t=384&v=_lP6epjupJs)

to make this invisible, obviously you'll notice that it looks

* [06:26 - 06:28](https://www.youtube.com/watch?t=386&v=_lP6epjupJs)

pretty horrendous right now.

* [06:28 - 06:30](https://www.youtube.com/watch?t=388&v=_lP6epjupJs)

We don't want to actually see this.

* [06:30 - 06:32](https://www.youtube.com/watch?t=390&v=_lP6epjupJs)

What we want to do is use the collider,

* [06:32 - 06:34](https://www.youtube.com/watch?t=392&v=_lP6epjupJs)

so the outline of this shape.

* [06:34 - 06:38](https://www.youtube.com/watch?t=394&v=_lP6epjupJs)

We don't want to use this kind of grey for any reason at all.

* [06:38 - 06:40](https://www.youtube.com/watch?t=398&v=_lP6epjupJs)

So a quad is made visible by the

* [06:40 - 06:42](https://www.youtube.com/watch?t=400&v=_lP6epjupJs)

mesh renderer component,

* [06:42 - 06:44](https://www.youtube.com/watch?t=402&v=_lP6epjupJs)

and because we don't want that we're just going to

* [06:44 - 06:47](https://www.youtube.com/watch?t=404&v=_lP6epjupJs)

go ahead and remove it so with the floor selected

* [06:48 - 06:50](https://www.youtube.com/watch?t=408&v=_lP6epjupJs)

click the cog to the right of the mesh renderer

* [06:50 - 06:52](https://www.youtube.com/watch?t=410&v=_lP6epjupJs)

and choose Remove Component.

* [06:53 - 06:55](https://www.youtube.com/watch?t=413&v=_lP6epjupJs)

So with your floor selected go to

* [06:55 - 06:57](https://www.youtube.com/watch?t=415&v=_lP6epjupJs)

the cog icon in the upper right and choose

* [06:57 - 06:59](https://www.youtube.com/watch?t=417&v=_lP6epjupJs)

Remove Component and you should see

* [06:59 - 07:02](https://www.youtube.com/watch?t=419&v=_lP6epjupJs)

that you can then only see the collider outline.

* [07:02 - 07:04](https://www.youtube.com/watch?t=422&v=_lP6epjupJs)

Make sure you remove the mesh renderer,

* [07:04 - 07:07](https://www.youtube.com/watch?t=424&v=_lP6epjupJs)

not the mesh filter or the mesh collider.

* [07:07 - 07:11](https://www.youtube.com/watch?t=427&v=_lP6epjupJs)

Remember you've got Undo if anything goes horrendously wrong

* [07:11 - 07:14](https://www.youtube.com/watch?t=431&v=_lP6epjupJs)

but you should then see that you just have the collider around

* [07:14 - 07:16](https://www.youtube.com/watch?t=434&v=_lP6epjupJs)

the outline of the level, something like that.

* [07:17 - 07:19](https://www.youtube.com/watch?t=437&v=_lP6epjupJs)

Then because we don't want

* [07:19 - 07:21](https://www.youtube.com/watch?t=439&v=_lP6epjupJs)

our ray cast to check for anything

* [07:21 - 07:24](https://www.youtube.com/watch?t=441&v=_lP6epjupJs)

but this quad we're going to use layers.

* [07:24 - 07:26](https://www.youtube.com/watch?t=444&v=_lP6epjupJs)

so a layer is a way of isolating

* [07:26 - 07:30](https://www.youtube.com/watch?t=446&v=_lP6epjupJs)

things like ray casting or lighting for example,

* [07:30 - 07:32](https://www.youtube.com/watch?t=450&v=_lP6epjupJs)

to a particular group.

* [07:32 - 07:34](https://www.youtube.com/watch?t=452&v=_lP6epjupJs)

So with the floor selected

* [07:34 - 07:36](https://www.youtube.com/watch?t=454&v=_lP6epjupJs)

if you click the Layer drop down you should see

* [07:36 - 07:40](https://www.youtube.com/watch?t=456&v=_lP6epjupJs)

that we have a floor layer ready for you.

* [07:40 - 07:42](https://www.youtube.com/watch?t=460&v=_lP6epjupJs)

Choose from the Layer drop down at the top of the

* [07:42 - 07:44](https://www.youtube.com/watch?t=462&v=_lP6epjupJs)

the inspector, Floor.

* [07:46 - 07:48](https://www.youtube.com/watch?t=466&v=_lP6epjupJs)

And then save your scene.

* [07:48 - 07:50](https://www.youtube.com/watch?t=468&v=_lP6epjupJs)

The next thing we're going to do is finish off

* [07:50 - 07:54](https://www.youtube.com/watch?t=470&v=_lP6epjupJs)

our environment by adding some background music.

* [07:54 - 07:56](https://www.youtube.com/watch?t=474&v=_lP6epjupJs)

With sound sources in Unity we can attach

* [07:56 - 07:58](https://www.youtube.com/watch?t=476&v=_lP6epjupJs)

them to any object, it's a component that you

* [07:58 - 08:00](https://www.youtube.com/watch?t=478&v=_lP6epjupJs)

use to apply a clip to or you

* [08:00 - 08:03](https://www.youtube.com/watch?t=480&v=_lP6epjupJs)

use scripting to assign clips to.

* [08:03 - 08:05](https://www.youtube.com/watch?t=483&v=_lP6epjupJs)

We are going to have a separate game

* [08:05 - 08:07](https://www.youtube.com/watch?t=485&v=_lP6epjupJs)

object just to keep things separate and just to

* [08:07 - 08:08](https://www.youtube.com/watch?t=487&v=_lP6epjupJs)

keep them nicely organised.

* [08:08 - 08:11](https://www.youtube.com/watch?t=488&v=_lP6epjupJs)

So I'd like you to go to Game Object - Create Empty

* [08:13 - 08:15](https://www.youtube.com/watch?t=493&v=_lP6epjupJs)

and then rename this Background Music.

* [08:17 - 08:19](https://www.youtube.com/watch?t=497&v=_lP6epjupJs)

Return on the Mac or F2 on the PC

* [08:19 - 08:21](https://www.youtube.com/watch?t=499&v=_lP6epjupJs)

just like your operating system

* [08:21 - 08:23](https://www.youtube.com/watch?t=501&v=_lP6epjupJs)

and rename this Background Music

* [08:23 - 08:27](https://www.youtube.com/watch?t=503&v=_lP6epjupJs)

So we're creating an empty and renaming it Background Music.

* [08:27 - 08:30](https://www.youtube.com/watch?t=507&v=_lP6epjupJs)

Then we can add components to our game objects

* [08:30 - 08:32](https://www.youtube.com/watch?t=510&v=_lP6epjupJs)

to make them do different things.

* [08:32 - 08:35](https://www.youtube.com/watch?t=512&v=_lP6epjupJs)

So we have a component menu up at the top

* [08:35 - 08:37](https://www.youtube.com/watch?t=515&v=_lP6epjupJs)

with a bunch of different categories of things

* [08:37 - 08:39](https://www.youtube.com/watch?t=517&v=_lP6epjupJs)

that you can do to your game object to give it different

* [08:39 - 08:42](https://www.youtube.com/watch?t=519&v=_lP6epjupJs)

behaviour of different functionality.

* [08:42 - 08:44](https://www.youtube.com/watch?t=522&v=_lP6epjupJs)

What we're going to add is an audio source

* [08:44 - 08:46](https://www.youtube.com/watch?t=524&v=_lP6epjupJs)

so we can use this component menu

* [08:46 - 08:49](https://www.youtube.com/watch?t=526&v=_lP6epjupJs)

or we can use the Add Component menu

* [08:49 - 08:51](https://www.youtube.com/watch?t=529&v=_lP6epjupJs)

over on the right in the inspector.

* [08:51 - 08:53](https://www.youtube.com/watch?t=531&v=_lP6epjupJs)

So because the inspector will show you properties of the

* [08:53 - 08:56](https://www.youtube.com/watch?t=533&v=_lP6epjupJs)

game object currently selected we can

* [08:56 - 08:58](https://www.youtube.com/watch?t=536&v=_lP6epjupJs)

go in to here and we want to add an Audio

* [08:58 - 09:00](https://www.youtube.com/watch?t=538&v=_lP6epjupJs)

Audio Source

* [09:01 - 09:04](https://www.youtube.com/watch?t=541&v=_lP6epjupJs)

We don't really want to hear the music

* [09:04 - 09:06](https://www.youtube.com/watch?t=544&v=_lP6epjupJs)

for this game playing

* [09:06 - 09:08](https://www.youtube.com/watch?t=546&v=_lP6epjupJs)

every time you press play in your game

* [09:08 - 09:11](https://www.youtube.com/watch?t=548&v=_lP6epjupJs)

but just to make sure that everyone's worked

* [09:11 - 09:13](https://www.youtube.com/watch?t=551&v=_lP6epjupJs)

we are going to do it once.

* [09:13 - 09:15](https://www.youtube.com/watch?t=553&v=_lP6epjupJs)

So to assign a audio clip

* [09:15 - 09:18](https://www.youtube.com/watch?t=555&v=_lP6epjupJs)

to the audio source we can use the circle select.

* [09:18 - 09:20](https://www.youtube.com/watch?t=558&v=_lP6epjupJs)

We're going to refer to circle select a lot throughout

* [09:20 - 09:24](https://www.youtube.com/watch?t=560&v=_lP6epjupJs)

the day, it's the small nipple-like icon

* [09:24 - 09:27](https://www.youtube.com/watch?t=564&v=_lP6epjupJs)

to the right of the audio clip, and what that will do is pop up

* [09:27 - 09:29](https://www.youtube.com/watch?t=567&v=_lP6epjupJs)

a context window which is going to allow you to

* [09:29 - 09:31](https://www.youtube.com/watch?t=569&v=_lP6epjupJs)

find the file you need.

* [09:31 - 09:33](https://www.youtube.com/watch?t=571&v=_lP6epjupJs)

The file you need is Background Music,

* [09:33 - 09:37](https://www.youtube.com/watch?t=573&v=_lP6epjupJs)

surprisingly enough, and simply closing that window

* [09:37 - 09:39](https://www.youtube.com/watch?t=577&v=_lP6epjupJs)

will assign it to that.

* [09:39 - 09:43](https://www.youtube.com/watch?t=579&v=_lP6epjupJs)

For everyone's sanity uncheck Play On Awake.

* [09:43 - 09:45](https://www.youtube.com/watch?t=583&v=_lP6epjupJs)

We also want the music to loop when we are finished

* [09:45 - 09:48](https://www.youtube.com/watch?t=585&v=_lP6epjupJs)

with the game, we do want it to loop

* [09:48 - 09:51](https://www.youtube.com/watch?t=588&v=_lP6epjupJs)

so uncheck Play On Awake and check Loop.

* [09:51 - 09:54](https://www.youtube.com/watch?t=591&v=_lP6epjupJs)

In the volume in the component there is a slider.

* [09:55 - 09:58](https://www.youtube.com/watch?t=595&v=_lP6epjupJs)

And we can just drag that down to about 0.1.

* [09:58 - 10:00](https://www.youtube.com/watch?t=598&v=_lP6epjupJs)

So that's just to balance it with the other sound effects

* [10:00 - 10:02](https://www.youtube.com/watch?t=600&v=_lP6epjupJs)

we have in the game, and then you can go ahead and

* [10:02 - 10:04](https://www.youtube.com/watch?t=602&v=_lP6epjupJs)

save your scene once more.

* [10:04 - 10:07](https://www.youtube.com/watch?t=604&v=_lP6epjupJs)

That's the end of phase one, setting up the environment.

* [10:07 - 10:10](https://www.youtube.com/watch?t=607&v=_lP6epjupJs)

The next thing we're going to do is look at our player character.

# Phase 2

* So what we're going to do is setup our player now
* [00:05 - 00:07](https://www.youtube.com/watch?t=5&v=R8O8Y6xP79w)

which is going to get him moving and jazzing and

* [00:07 - 00:09](https://www.youtube.com/watch?t=7&v=R8O8Y6xP79w)

beboping and doing all that stuff.

* [00:09 - 00:11](https://www.youtube.com/watch?t=9&v=R8O8Y6xP79w)

What we're going to do is we're going to go ahead and locate

* [00:11 - 00:13](https://www.youtube.com/watch?t=11&v=R8O8Y6xP79w)

the player model, which is going to be located

* [00:13 - 00:15](https://www.youtube.com/watch?t=13&v=R8O8Y6xP79w)

in Models folder, and we're going to

* [00:15 - 00:17](https://www.youtube.com/watch?t=15&v=R8O8Y6xP79w)

expand that and we're going to look in the Characters folder

* [00:17 - 00:19](https://www.youtube.com/watch?t=17&v=R8O8Y6xP79w)

and we should see a player,

* [00:19 - 00:21](https://www.youtube.com/watch?t=19&v=R8O8Y6xP79w)

there we go, Player, it should be right there.

* [00:21 - 00:23](https://www.youtube.com/watch?t=21&v=R8O8Y6xP79w)

So what we're going to do is we're going to go ahead and

* [00:23 - 00:25](https://www.youtube.com/watch?t=23&v=R8O8Y6xP79w)

drag that either in to the scene or in to

* [00:25 - 00:27](https://www.youtube.com/watch?t=25&v=R8O8Y6xP79w)

the hierarchy view.

* [00:27 - 00:29](https://www.youtube.com/watch?t=27&v=R8O8Y6xP79w)

So we'll just click and drag and drop and there he is.

* [00:31 - 00:35](https://www.youtube.com/watch?t=31&v=R8O8Y6xP79w)

There he is, looking pretty swag.

* [00:35 - 00:39](https://www.youtube.com/watch?t=35&v=R8O8Y6xP79w)

And so obviously if we just click and drag him to the scene he might

* [00:39 - 00:40](https://www.youtube.com/watch?t=39&v=R8O8Y6xP79w)

go where ever, you know, so we need to

* [00:40 - 00:42](https://www.youtube.com/watch?t=40&v=R8O8Y6xP79w)

place him at a specific spot so we're going to be sure that

* [00:42 - 00:45](https://www.youtube.com/watch?t=42&v=R8O8Y6xP79w)

the position is at (0, 0, 0).

* [00:46 - 00:48](https://www.youtube.com/watch?t=46&v=R8O8Y6xP79w)

If it is then you're golden, if it's not then

* [00:48 - 00:50](https://www.youtube.com/watch?t=48&v=R8O8Y6xP79w)

go ahead and set it to (0, 0, 0)

* [00:50 - 00:52](https://www.youtube.com/watch?t=50&v=R8O8Y6xP79w)

by typing (0, 0, 0) or again we

* [00:52 - 00:54](https://www.youtube.com/watch?t=52&v=R8O8Y6xP79w)

have this cog or gear icon

* [00:54 - 00:56](https://www.youtube.com/watch?t=54&v=R8O8Y6xP79w)

and you can just click reset or reset position,

* [00:56 - 00:59](https://www.youtube.com/watch?t=56&v=R8O8Y6xP79w)

which will put it where ever we want it to be on the origin.

* [00:59 - 01:01](https://www.youtube.com/watch?t=59&v=R8O8Y6xP79w)

Now we need specific things to

* [01:01 - 01:03](https://www.youtube.com/watch?t=61&v=R8O8Y6xP79w)

interact with the player in a very special way.

* [01:03 - 01:05](https://www.youtube.com/watch?t=63&v=R8O8Y6xP79w)

And so we want to ensure that we have properly

* [01:05 - 01:07](https://www.youtube.com/watch?t=65&v=R8O8Y6xP79w)

tagged our player so certain things will know

* [01:07 - 01:09](https://www.youtube.com/watch?t=67&v=R8O8Y6xP79w)

when they've come in contact with the player.

* [01:09 - 01:13](https://www.youtube.com/watch?t=69&v=R8O8Y6xP79w)

To do that we have this Tag drop down

* [01:13 - 01:15](https://www.youtube.com/watch?t=73&v=R8O8Y6xP79w)

here in the inspector and it currently says Untagged.

* [01:15 - 01:17](https://www.youtube.com/watch?t=75&v=R8O8Y6xP79w)

And what we're going to do is we're going to click that drop down

* [01:17 - 01:19](https://www.youtube.com/watch?t=77&v=R8O8Y6xP79w)

and we are going to select Player.

* [01:19 - 01:21](https://www.youtube.com/watch?t=79&v=R8O8Y6xP79w)

Thus tagging our player

* [01:21 - 01:23](https://www.youtube.com/watch?t=81&v=R8O8Y6xP79w)

as the player so that the player will

* [01:23 - 01:25](https://www.youtube.com/watch?t=83&v=R8O8Y6xP79w)

behave appropriately when they are playing.

* [01:27 - 01:28](https://www.youtube.com/watch?t=87&v=R8O8Y6xP79w)

Alright, fantastic.

* [01:28 - 01:30](https://www.youtube.com/watch?t=88&v=R8O8Y6xP79w)

Now what we need to do is

* [01:30 - 01:32](https://www.youtube.com/watch?t=90&v=R8O8Y6xP79w)

we're going to go ahead and create

* [01:32 - 01:34](https://www.youtube.com/watch?t=92&v=R8O8Y6xP79w)

an animation controller for our player,

* [01:34 - 01:36](https://www.youtube.com/watch?t=94&v=R8O8Y6xP79w)

which is going to allow us to

* [01:36 - 01:38](https://www.youtube.com/watch?t=96&v=R8O8Y6xP79w)

have all the neat little

* [01:38 - 01:40](https://www.youtube.com/watch?t=98&v=R8O8Y6xP79w)

animation effects of moving and turning and

* [01:40 - 01:41](https://www.youtube.com/watch?t=100&v=R8O8Y6xP79w)

doing all that stuff,

* [01:41 - 01:43](https://www.youtube.com/watch?t=101&v=R8O8Y6xP79w)

and I'm still zoomed in here.

* [01:43 - 01:45](https://www.youtube.com/watch?t=103&v=R8O8Y6xP79w)

So what we want to do is we want to go ahead and

* [01:45 - 01:47](https://www.youtube.com/watch?t=105&v=R8O8Y6xP79w)

locate the Animation folder

* [01:47 - 01:47](https://www.youtube.com/watch?t=107&v=R8O8Y6xP79w)

which we'll just click on right here.

* [01:47 - 01:50](https://www.youtube.com/watch?t=107&v=R8O8Y6xP79w)

Currently it is in fact empty and we are going to make

* [01:50 - 01:53](https://www.youtube.com/watch?t=110&v=R8O8Y6xP79w)

an animator controller.

* [01:53 - 01:55](https://www.youtube.com/watch?t=113&v=R8O8Y6xP79w)

Shall we just talk a little bit about the

* [01:55 - 01:57](https://www.youtube.com/watch?t=115&v=R8O8Y6xP79w)

animations that we've setup first?

* [01:57 - 01:58](https://www.youtube.com/watch?t=117&v=R8O8Y6xP79w)

Great idea!

* [01:58 - 02:01](https://www.youtube.com/watch?t=118&v=R8O8Y6xP79w)

Cool. So the model that we've just dragged in

* [02:02 - 02:06](https://www.youtube.com/watch?t=122&v=R8O8Y6xP79w)

is the player model and what you can do is drag up

* [02:07 - 02:10](https://www.youtube.com/watch?t=127&v=R8O8Y6xP79w)

the preview window in the lower right of the editor.

* [02:10 - 02:13](https://www.youtube.com/watch?t=130&v=R8O8Y6xP79w)

So this model has been animated

* [02:13 - 02:15](https://www.youtube.com/watch?t=133&v=R8O8Y6xP79w)

for you, so when you bring in an FPX

* [02:15 - 02:17](https://www.youtube.com/watch?t=135&v=R8O8Y6xP79w)

in to Unity, or a Maya file

* [02:17 - 02:19](https://www.youtube.com/watch?t=137&v=R8O8Y6xP79w)

or a 3DS Max, whatever package you use,

* [02:20 - 02:22](https://www.youtube.com/watch?t=140&v=R8O8Y6xP79w)

When you bring that in you can

* [02:22 - 02:24](https://www.youtube.com/watch?t=142&v=R8O8Y6xP79w)

store animations within it or if you have

* [02:24 - 02:26](https://www.youtube.com/watch?t=144&v=R8O8Y6xP79w)

a humanoid, a biped-type model

* [02:26 - 02:29](https://www.youtube.com/watch?t=146&v=R8O8Y6xP79w)

you can retarget those animations on to

* [02:29 - 02:31](https://www.youtube.com/watch?t=149&v=R8O8Y6xP79w)

similar type of models.

* [02:32 - 02:34](https://www.youtube.com/watch?t=152&v=R8O8Y6xP79w)

This particular thing is rigged

* [02:34 - 02:36](https://www.youtube.com/watch?t=154&v=R8O8Y6xP79w)

in what we call a generic manner.

* [02:36 - 02:39](https://www.youtube.com/watch?t=156&v=R8O8Y6xP79w)

So if I look at my rig you can see generic up at the top.

* [02:41 - 02:43](https://www.youtube.com/watch?t=161&v=R8O8Y6xP79w)

And what that means is that it's a very specific

* [02:43 - 02:46](https://www.youtube.com/watch?t=163&v=R8O8Y6xP79w)

bone structure because our character is going to move like this.

* [02:47 - 02:49](https://www.youtube.com/watch?t=167&v=R8O8Y6xP79w)

It's going to be kind of hopping around.

* [02:49 - 02:52](https://www.youtube.com/watch?t=169&v=R8O8Y6xP79w)

So he's not got two arms, two legs as a biped would.

* [02:52 - 02:54](https://www.youtube.com/watch?t=172&v=R8O8Y6xP79w)

So the animations that are stored in this

* [02:55 - 02:58](https://www.youtube.com/watch?t=175&v=R8O8Y6xP79w)

particular model that we've given you

* [02:58 - 03:01](https://www.youtube.com/watch?t=178&v=R8O8Y6xP79w)

are a move, an idle and a death.

* [03:01 - 03:03](https://www.youtube.com/watch?t=181&v=R8O8Y6xP79w)

So what we're going to do now is to create

* [03:03 - 03:05](https://www.youtube.com/watch?t=183&v=R8O8Y6xP79w)

a state machine called the Animator Controller

* [03:05 - 03:07](https://www.youtube.com/watch?t=185&v=R8O8Y6xP79w)

to control when these three different

* [03:07 - 03:10](https://www.youtube.com/watch?t=187&v=R8O8Y6xP79w)

animations are going to be played back.

* [03:11 - 03:13](https://www.youtube.com/watch?t=191&v=R8O8Y6xP79w)

If you're looking in the inspector here

* [03:13 - 03:15](https://www.youtube.com/watch?t=193&v=R8O8Y6xP79w)

I highly encourage you not to

* [03:15 - 03:16](https://www.youtube.com/watch?t=195&v=R8O8Y6xP79w)

touch anything.

* [03:16 - 03:18](https://www.youtube.com/watch?t=196&v=R8O8Y6xP79w)

Because these changes change how Unity

* [03:18 - 03:21](https://www.youtube.com/watch?t=198&v=R8O8Y6xP79w)

imports the stuff and if you just start clicking

* [03:21 - 03:23](https://www.youtube.com/watch?t=201&v=R8O8Y6xP79w)

and a little box comes up and says 'would you like to apply?'

* [03:23 - 03:24](https://www.youtube.com/watch?t=203&v=R8O8Y6xP79w)

and you're like 'yeah, apply for what?'

* [03:24 - 03:26](https://www.youtube.com/watch?t=204&v=R8O8Y6xP79w)

and then all of a sudden your stuff is not going to

* [03:26 - 03:28](https://www.youtube.com/watch?t=206&v=R8O8Y6xP79w)

work later, so just look but don't touch.

* [03:28 - 03:30](https://www.youtube.com/watch?t=208&v=R8O8Y6xP79w)

So we're doing this just to

* [03:30 - 03:32](https://www.youtube.com/watch?t=210&v=R8O8Y6xP79w)

show your where the animation's going to be

* [03:32 - 03:34](https://www.youtube.com/watch?t=212&v=R8O8Y6xP79w)

coming from and we're going to go ahead and

* [03:34 - 03:36](https://www.youtube.com/watch?t=214&v=R8O8Y6xP79w)

actually implement it now.

* [03:36 - 03:38](https://www.youtube.com/watch?t=216&v=R8O8Y6xP79w)

We're going to go back to this animation folder

* [03:38 - 03:40](https://www.youtube.com/watch?t=218&v=R8O8Y6xP79w)

and again it's still empty so

* [03:40 - 03:42](https://www.youtube.com/watch?t=220&v=R8O8Y6xP79w)

no magic there yet.

* [03:42 - 03:44](https://www.youtube.com/watch?t=222&v=R8O8Y6xP79w)

And we're going to go ahead and add what's called

* [03:44 - 03:45](https://www.youtube.com/watch?t=224&v=R8O8Y6xP79w)

an animator controller.

* [03:45 - 03:48](https://www.youtube.com/watch?t=225&v=R8O8Y6xP79w)

Animator controllers are part of the mecan animation

* [03:48 - 03:51](https://www.youtube.com/watch?t=228&v=R8O8Y6xP79w)

system, they're basically a finite state machine that just

* [03:51 - 03:53](https://www.youtube.com/watch?t=231&v=R8O8Y6xP79w)

blends animations and does all this neat stuff,

* [03:53 - 03:55](https://www.youtube.com/watch?t=233&v=R8O8Y6xP79w)

it's actually magic, we hired wizards.

* [03:55 - 03:57](https://www.youtube.com/watch?t=235&v=R8O8Y6xP79w)

And what we're going to do is we're going to go ahead and

* [03:57 - 03:59](https://www.youtube.com/watch?t=237&v=R8O8Y6xP79w)

create this asset that's going to allow us to do that.

* [03:59 - 04:01](https://www.youtube.com/watch?t=239&v=R8O8Y6xP79w)

So I'm going to right click here inside

* [04:01 - 04:05](https://www.youtube.com/watch?t=241&v=R8O8Y6xP79w)

this animation folder in the project view here

* [04:05 - 04:07](https://www.youtube.com/watch?t=245&v=R8O8Y6xP79w)

and I am going to select

* [04:07 - 04:09](https://www.youtube.com/watch?t=247&v=R8O8Y6xP79w)

Create and then Animator Controller.

* [04:09 - 04:12](https://www.youtube.com/watch?t=249&v=R8O8Y6xP79w)

Not Animation, not Animator Override Controller

* [04:12 - 04:14](https://www.youtube.com/watch?t=252&v=R8O8Y6xP79w)

but Animator Controller.

* [04:14 - 04:16](https://www.youtube.com/watch?t=254&v=R8O8Y6xP79w)

And I'm going to get this name here and I'm going to name it

* [04:16 - 04:21](https://www.youtube.com/watch?t=256&v=R8O8Y6xP79w)

Player AC for Animator Controller.

* [04:21 - 04:22](https://www.youtube.com/watch?t=261&v=R8O8Y6xP79w)

There we go.

* [04:22 - 04:24](https://www.youtube.com/watch?t=262&v=R8O8Y6xP79w)

And so once we have that what we're

* [04:24 - 04:26](https://www.youtube.com/watch?t=264&v=R8O8Y6xP79w)

going to do is we are going to

* [04:26 - 04:28](https://www.youtube.com/watch?t=266&v=R8O8Y6xP79w)

actually just click and drag that on

* [04:28 - 04:30](https://www.youtube.com/watch?t=268&v=R8O8Y6xP79w)

to the player, which is going to apply this animator

* [04:30 - 04:32](https://www.youtube.com/watch?t=270&v=R8O8Y6xP79w)

controller to the player,

* [04:32 - 04:34](https://www.youtube.com/watch?t=272&v=R8O8Y6xP79w)

I'm not going to put it under the player

* [04:34 - 04:36](https://www.youtube.com/watch?t=274&v=R8O8Y6xP79w)

I'm going to put it on the player and you'll know the difference

* [04:36 - 04:39](https://www.youtube.com/watch?t=276&v=R8O8Y6xP79w)

because Player itself will become highlighted.

* [04:39 - 04:41](https://www.youtube.com/watch?t=279&v=R8O8Y6xP79w)

And I'll let go.

* [04:41 - 04:43](https://www.youtube.com/watch?t=281&v=R8O8Y6xP79w)

I can confirm I did this correctly be clicking on the player

* [04:43 - 04:46](https://www.youtube.com/watch?t=283&v=R8O8Y6xP79w)

and I see here Player AC

* [04:46 - 04:48](https://www.youtube.com/watch?t=286&v=R8O8Y6xP79w)

is now listed in the animator

* [04:48 - 04:50](https://www.youtube.com/watch?t=288&v=R8O8Y6xP79w)

component, Player AC, right there.

* [04:50 - 04:52](https://www.youtube.com/watch?t=290&v=R8O8Y6xP79w)

That's how I know I've done it correctly.

* [04:54 - 04:57](https://www.youtube.com/watch?t=294&v=R8O8Y6xP79w)

Now let's go ahead and look at this animator controller,

* [04:57 - 04:58](https://www.youtube.com/watch?t=297&v=R8O8Y6xP79w)

now that we have it created,

* [04:58 - 05:01](https://www.youtube.com/watch?t=298&v=R8O8Y6xP79w)

and to do that I can go to Window

* [05:01 - 05:03](https://www.youtube.com/watch?t=301&v=R8O8Y6xP79w)

and then select Animator

* [05:03 - 05:05](https://www.youtube.com/watch?t=303&v=R8O8Y6xP79w)

but easier is to

* [05:05 - 05:07](https://www.youtube.com/watch?t=305&v=R8O8Y6xP79w)

see my Player AC and just double click on it,

* [05:07 - 05:10](https://www.youtube.com/watch?t=307&v=R8O8Y6xP79w)

which is automatically going to open up the animator window.

* [05:10 - 05:12](https://www.youtube.com/watch?t=310&v=R8O8Y6xP79w)

If it's not docked here

* [05:12 - 05:14](https://www.youtube.com/watch?t=312&v=R8O8Y6xP79w)

you can just dock it by clicking the

* [05:14 - 05:17](https://www.youtube.com/watch?t=314&v=R8O8Y6xP79w)

tab, dragging it and docking it in to the window.

* [05:17 - 05:19](https://www.youtube.com/watch?t=317&v=R8O8Y6xP79w)

So as we were looking at earlier

* [05:19 - 05:21](https://www.youtube.com/watch?t=319&v=R8O8Y6xP79w)

when Will clicked on the player

* [05:21 - 05:23](https://www.youtube.com/watch?t=321&v=R8O8Y6xP79w)

FPX model and we looked in the inspector and we saw

* [05:23 - 05:25](https://www.youtube.com/watch?t=323&v=R8O8Y6xP79w)

those animations that were baked in to those settings.

* [05:25 - 05:28](https://www.youtube.com/watch?t=325&v=R8O8Y6xP79w)

Those actually create assets that we're able to use.

* [05:28 - 05:30](https://www.youtube.com/watch?t=328&v=R8O8Y6xP79w)

So if I go back to the Model's

* [05:30 - 05:33](https://www.youtube.com/watch?t=330&v=R8O8Y6xP79w)

character's folder right here.

* [05:34 - 05:37](https://www.youtube.com/watch?t=334&v=R8O8Y6xP79w)

and again look at my player.fpx.

* [05:37 - 05:39](https://www.youtube.com/watch?t=337&v=R8O8Y6xP79w)

If I were to expand that I would

* [05:39 - 05:41](https://www.youtube.com/watch?t=339&v=R8O8Y6xP79w)

see the assets that make up

* [05:41 - 05:43](https://www.youtube.com/watch?t=341&v=R8O8Y6xP79w)

this imported model

* [05:43 - 05:45](https://www.youtube.com/watch?t=343&v=R8O8Y6xP79w)

and so I'm going to go ahead and click this model here

* [05:45 - 05:48](https://www.youtube.com/watch?t=345&v=R8O8Y6xP79w)

and what I see is I see these three animations

* [05:48 - 05:50](https://www.youtube.com/watch?t=348&v=R8O8Y6xP79w)

death, idle and move.

* [05:50 - 05:52](https://www.youtube.com/watch?t=350&v=R8O8Y6xP79w)

So not only were the animations imported

* [05:52 - 05:54](https://www.youtube.com/watch?t=352&v=R8O8Y6xP79w)

as part of the model but we actually have them assets

* [05:54 - 05:56](https://www.youtube.com/watch?t=354&v=R8O8Y6xP79w)

that we can utilise.

* [05:56 - 05:58](https://www.youtube.com/watch?t=356&v=R8O8Y6xP79w)

And so what I'm going to do now is I'm actually

* [05:58 - 06:00](https://www.youtube.com/watch?t=358&v=R8O8Y6xP79w)

going to just take each of these in turn

* [06:00 - 06:02](https://www.youtube.com/watch?t=360&v=R8O8Y6xP79w)

and move them in to my

* [06:02 - 06:04](https://www.youtube.com/watch?t=362&v=R8O8Y6xP79w)

animator window, I'm just going to click and drag them,

* [06:04 - 06:06](https://www.youtube.com/watch?t=364&v=R8O8Y6xP79w)

and drop them

* [06:06 - 06:09](https://www.youtube.com/watch?t=366&v=R8O8Y6xP79w)

I'm just going in order here so I'm going to do death,

* [06:09 - 06:11](https://www.youtube.com/watch?t=369&v=R8O8Y6xP79w)

idle and move, the order's not going to matter because

* [06:11 - 06:13](https://www.youtube.com/watch?t=371&v=R8O8Y6xP79w)

we're going to reorder them in just a moment.

* [06:14 - 06:16](https://www.youtube.com/watch?t=374&v=R8O8Y6xP79w)

So when you have this done right

* [06:16 - 06:18](https://www.youtube.com/watch?t=376&v=R8O8Y6xP79w)

you'll see that you have this Any state

* [06:18 - 06:21](https://www.youtube.com/watch?t=378&v=R8O8Y6xP79w)

and a Death state and an Idle state and a Move state.

* [06:21 - 06:23](https://www.youtube.com/watch?t=381&v=R8O8Y6xP79w)

And so we'll notice that the death state is

* [06:23 - 06:25](https://www.youtube.com/watch?t=383&v=R8O8Y6xP79w)

orange, or which ever state you drag in first

* [06:25 - 06:26](https://www.youtube.com/watch?t=385&v=R8O8Y6xP79w)

is orange, right?

* [06:26 - 06:28](https://www.youtube.com/watch?t=386&v=R8O8Y6xP79w)

Orange means that it's the default state.

* [06:28 - 06:31](https://www.youtube.com/watch?t=388&v=R8O8Y6xP79w)

Obviously I do not want death as the default state

* [06:31 - 06:33](https://www.youtube.com/watch?t=391&v=R8O8Y6xP79w)

It's a sad game but it's not that sad.

* [06:33 - 06:35](https://www.youtube.com/watch?t=393&v=R8O8Y6xP79w)

And so what I want to do is

* [06:35 - 06:37](https://www.youtube.com/watch?t=395&v=R8O8Y6xP79w)

I am going to set a different state

* [06:37 - 06:39](https://www.youtube.com/watch?t=397&v=R8O8Y6xP79w)

as our default state, so I am going to right click

* [06:39 - 06:42](https://www.youtube.com/watch?t=399&v=R8O8Y6xP79w)

on Idle and I'm going to click

* [06:42 - 06:44](https://www.youtube.com/watch?t=402&v=R8O8Y6xP79w)

Set As Default.

* [06:46 - 06:49](https://www.youtube.com/watch?t=406&v=R8O8Y6xP79w)

So that will then turn orange.

* [06:49 - 06:51](https://www.youtube.com/watch?t=409&v=R8O8Y6xP79w)

And I can reorder by clicking and dragging and moving

* [06:51 - 06:53](https://www.youtube.com/watch?t=411&v=R8O8Y6xP79w)

things around, if you just happened to be very particular

* [06:53 - 06:55](https://www.youtube.com/watch?t=413&v=R8O8Y6xP79w)

about how things look you can start

* [06:55 - 06:57](https://www.youtube.com/watch?t=415&v=R8O8Y6xP79w)

building yourself some geometric structures if you really

* [06:57 - 06:58](https://www.youtube.com/watch?t=417&v=R8O8Y6xP79w)

feel like it, whatever.

* [06:58 - 07:01](https://www.youtube.com/watch?t=418&v=R8O8Y6xP79w)

Anyway, now we have idle as the

* [07:01 - 07:03](https://www.youtube.com/watch?t=421&v=R8O8Y6xP79w)

default state and so what we need to do

* [07:03 - 07:05](https://www.youtube.com/watch?t=423&v=R8O8Y6xP79w)

is we need to

* [07:05 - 07:07](https://www.youtube.com/watch?t=425&v=R8O8Y6xP79w)

tell the animator

* [07:07 - 07:09](https://www.youtube.com/watch?t=427&v=R8O8Y6xP79w)

when we want to transition from one

* [07:09 - 07:11](https://www.youtube.com/watch?t=429&v=R8O8Y6xP79w)

state to another state.

* [07:11 - 07:13](https://www.youtube.com/watch?t=431&v=R8O8Y6xP79w)

So we've got these three states, idle, move and death.

* [07:13 - 07:16](https://www.youtube.com/watch?t=433&v=R8O8Y6xP79w)

And they're self-contained animations, they can play and all that stuff but

* [07:16 - 07:18](https://www.youtube.com/watch?t=436&v=R8O8Y6xP79w)

the logic of when we go from one

* [07:18 - 07:20](https://www.youtube.com/watch?t=438&v=R8O8Y6xP79w)

to the next isn't currently in here.

* [07:20 - 07:22](https://www.youtube.com/watch?t=440&v=R8O8Y6xP79w)

So what we need to do is we need to create something

* [07:22 - 07:24](https://www.youtube.com/watch?t=442&v=R8O8Y6xP79w)

called a parameter which is basically going to control

* [07:24 - 07:26](https://www.youtube.com/watch?t=444&v=R8O8Y6xP79w)

when something happens,

* [07:26 - 07:28](https://www.youtube.com/watch?t=446&v=R8O8Y6xP79w)

when something changes state.

* [07:28 - 07:30](https://www.youtube.com/watch?t=448&v=R8O8Y6xP79w)

And we access those parameters right here

* [07:30 - 07:32](https://www.youtube.com/watch?t=450&v=R8O8Y6xP79w)

with this little Parameters button

* [07:32 - 07:33](https://www.youtube.com/watch?t=452&v=R8O8Y6xP79w)

it's very cleverly named,

* [07:33 - 07:36](https://www.youtube.com/watch?t=453&v=R8O8Y6xP79w)

and we have this little + icon right there.

* [07:36 - 07:38](https://www.youtube.com/watch?t=456&v=R8O8Y6xP79w)

What we want to do is we want to create a parameter

* [07:38 - 07:39](https://www.youtube.com/watch?t=458&v=R8O8Y6xP79w)

so the first parameter we're going to create,

* [07:39 - 07:41](https://www.youtube.com/watch?t=459&v=R8O8Y6xP79w)

when we click this we're going to see some options

* [07:41 - 07:43](https://www.youtube.com/watch?t=461&v=R8O8Y6xP79w)

we can create a float, as in a floating point number,

* [07:43 - 07:46](https://www.youtube.com/watch?t=463&v=R8O8Y6xP79w)

int is an integer, bool is a boolean

* [07:46 - 07:49](https://www.youtube.com/watch?t=466&v=R8O8Y6xP79w)

or trigger, we want to create a boolean

* [07:49 - 07:52](https://www.youtube.com/watch?t=469&v=R8O8Y6xP79w)

and we're going to call this IsWalking.

* [07:52 - 07:54](https://www.youtube.com/watch?t=472&v=R8O8Y6xP79w)

It's very important that you spell it right

* [07:55 - 07:56](https://www.youtube.com/watch?t=475&v=R8O8Y6xP79w)

like I just did not.

* [07:56 - 07:58](https://www.youtube.com/watch?t=476&v=R8O8Y6xP79w)

There we go, IsWalking,

* [07:58 - 07:59](https://www.youtube.com/watch?t=478&v=R8O8Y6xP79w)

and then enter.

* [07:59 - 08:01](https://www.youtube.com/watch?t=479&v=R8O8Y6xP79w)

It has to be capital I

* [08:01 - 08:05](https://www.youtube.com/watch?t=481&v=R8O8Y6xP79w)

lowercase s, capital W alking.

* [08:05 - 08:07](https://www.youtube.com/watch?t=485&v=R8O8Y6xP79w)

alright, it's important that it's spelt

* [08:07 - 08:09](https://www.youtube.com/watch?t=487&v=R8O8Y6xP79w)

right because we have scripts that you're going to use

* [08:09 - 08:11](https://www.youtube.com/watch?t=489&v=R8O8Y6xP79w)

that reference it by name

* [08:11 - 08:14](https://www.youtube.com/watch?t=491&v=R8O8Y6xP79w)

so if you named it something else, like Skeletor,

* [08:14 - 08:16](https://www.youtube.com/watch?t=494&v=R8O8Y6xP79w)

when the time comes it's not going to work

* [08:16 - 08:20](https://www.youtube.com/watch?t=496&v=R8O8Y6xP79w)

you'll just have to open up your code and change it

* [08:20 - 08:21](https://www.youtube.com/watch?t=500&v=R8O8Y6xP79w)

which you really don't want to do.

* [08:21 - 08:23](https://www.youtube.com/watch?t=501&v=R8O8Y6xP79w)

So we have this IsWalking which is a boolean which

* [08:23 - 08:25](https://www.youtube.com/watch?t=503&v=R8O8Y6xP79w)

means it can be either true or false

* [08:25 - 08:27](https://www.youtube.com/watch?t=505&v=R8O8Y6xP79w)

and that true or false will dictate whether

* [08:27 - 08:29](https://www.youtube.com/watch?t=507&v=R8O8Y6xP79w)

he is walking.

* [08:29 - 08:31](https://www.youtube.com/watch?t=509&v=R8O8Y6xP79w)

I'm going to create another one now so again I'm going to click

* [08:31 - 08:33](https://www.youtube.com/watch?t=511&v=R8O8Y6xP79w)

this little + icon and I'm going to select

* [08:33 - 08:35](https://www.youtube.com/watch?t=513&v=R8O8Y6xP79w)

Trigger, and a trigger is like a boolean.

* [08:35 - 08:37](https://www.youtube.com/watch?t=515&v=R8O8Y6xP79w)

It can have a state True or False

* [08:37 - 08:39](https://www.youtube.com/watch?t=517&v=R8O8Y6xP79w)

but unlike a boolean the moment we set it to true

* [08:39 - 08:41](https://www.youtube.com/watch?t=519&v=R8O8Y6xP79w)

it sets it back to false.

* [08:41 - 08:43](https://www.youtube.com/watch?t=521&v=R8O8Y6xP79w)

Which is useful when I just want to

* [08:43 - 08:46](https://www.youtube.com/watch?t=523&v=R8O8Y6xP79w)

trigger something to happen one time and then it resets itself.

* [08:46 - 08:48](https://www.youtube.com/watch?t=526&v=R8O8Y6xP79w)

So we're going to select a trigger here

* [08:48 - 08:50](https://www.youtube.com/watch?t=528&v=R8O8Y6xP79w)

and this trigger is going to be

* [08:50 - 08:52](https://www.youtube.com/watch?t=530&v=R8O8Y6xP79w)

called Die.

* [08:53 - 08:55](https://www.youtube.com/watch?t=533&v=R8O8Y6xP79w)

We listened to a lot of heavy metal while making this.

* [08:55 - 08:57](https://www.youtube.com/watch?t=535&v=R8O8Y6xP79w)

So die is a trigger that's going to

* [08:57 - 08:59](https://www.youtube.com/watch?t=537&v=R8O8Y6xP79w)

be triggered when the player

* [08:59 - 09:00](https://www.youtube.com/watch?t=539&v=R8O8Y6xP79w)

actually dies.

* [09:00 - 09:02](https://www.youtube.com/watch?t=540&v=R8O8Y6xP79w)

Now what we want to do is

* [09:02 - 09:05](https://www.youtube.com/watch?t=542&v=R8O8Y6xP79w)

we have these parameters which is

* [09:05 - 09:07](https://www.youtube.com/watch?t=545&v=R8O8Y6xP79w)

great but now we need to tell

* [09:07 - 09:10](https://www.youtube.com/watch?t=547&v=R8O8Y6xP79w)

mechanim and the animator specifically how to use

* [09:10 - 09:12](https://www.youtube.com/watch?t=550&v=R8O8Y6xP79w)

those parameters, we need to set up some logic

* [09:12 - 09:14](https://www.youtube.com/watch?t=552&v=R8O8Y6xP79w)

to move us from one to the next.

* [09:23 - 09:25](https://www.youtube.com/watch?t=563&v=R8O8Y6xP79w)

So what we want to do is we want to setup

* [09:25 - 09:28](https://www.youtube.com/watch?t=565&v=R8O8Y6xP79w)

transitions that basically says

* [09:28 - 09:31](https://www.youtube.com/watch?t=568&v=R8O8Y6xP79w)

'this state is capable of going to that state'

* [09:31 - 09:33](https://www.youtube.com/watch?t=571&v=R8O8Y6xP79w)

and 'this state is capable of going to that state'.

* [09:33 - 09:35](https://www.youtube.com/watch?t=573&v=R8O8Y6xP79w)

We set up these transitions explicitly

* [09:35 - 09:37](https://www.youtube.com/watch?t=575&v=R8O8Y6xP79w)

so that we can't accidentally transition from

* [09:37 - 09:40](https://www.youtube.com/watch?t=577&v=R8O8Y6xP79w)

say Dead to Jump,

* [09:40 - 09:42](https://www.youtube.com/watch?t=580&v=R8O8Y6xP79w)

because that doesn't make a whole lot of sense.

* [09:42 - 09:44](https://www.youtube.com/watch?t=582&v=R8O8Y6xP79w)

So what we want to do is create these

* [09:44 - 09:46](https://www.youtube.com/watch?t=584&v=R8O8Y6xP79w)

transitions which basically are one-way bridges

* [09:46 - 09:48](https://www.youtube.com/watch?t=586&v=R8O8Y6xP79w)

that define logically how

* [09:48 - 09:50](https://www.youtube.com/watch?t=588&v=R8O8Y6xP79w)

we go from one state to another.

* [09:50 - 09:52](https://www.youtube.com/watch?t=590&v=R8O8Y6xP79w)

So what I'm going to do is I'm going to right click on Idle

* [09:52 - 09:54](https://www.youtube.com/watch?t=592&v=R8O8Y6xP79w)

and I'm going to select Make Transition.

* [09:54 - 09:57](https://www.youtube.com/watch?t=594&v=R8O8Y6xP79w)

And when I click Make Transition I get this

* [09:57 - 09:59](https://www.youtube.com/watch?t=597&v=R8O8Y6xP79w)

rodeo lasso thingy

* [09:59 - 10:01](https://www.youtube.com/watch?t=599&v=R8O8Y6xP79w)

which is fun to play with by itself,

* [10:01 - 10:02](https://www.youtube.com/watch?t=601&v=R8O8Y6xP79w)

but we're here for business,

* [10:02 - 10:04](https://www.youtube.com/watch?t=602&v=R8O8Y6xP79w)

so what I'm going to do is once I've confirmed that

* [10:04 - 10:06](https://www.youtube.com/watch?t=604&v=R8O8Y6xP79w)

there's this white line attached to my mouse

* [10:06 - 10:08](https://www.youtube.com/watch?t=606&v=R8O8Y6xP79w)

I'm going to move my mouse over the Move

* [10:08 - 10:10](https://www.youtube.com/watch?t=608&v=R8O8Y6xP79w)

animator state and I'm just going to click

* [10:10 - 10:12](https://www.youtube.com/watch?t=610&v=R8O8Y6xP79w)

and it's going to connect the two.

* [10:12 - 10:15](https://www.youtube.com/watch?t=612&v=R8O8Y6xP79w)

So now what we have is a transition from idle to move.

* [10:15 - 10:17](https://www.youtube.com/watch?t=615&v=R8O8Y6xP79w)

See, there you go in case you didn't believe me.

* [10:17 - 10:19](https://www.youtube.com/watch?t=617&v=R8O8Y6xP79w)

And so this is basically saying that we

* [10:19 - 10:22](https://www.youtube.com/watch?t=619&v=R8O8Y6xP79w)

can go from idle to move.

* [10:22 - 10:24](https://www.youtube.com/watch?t=622&v=R8O8Y6xP79w)

So what I'm going to do now is in order to

* [10:24 - 10:26](https://www.youtube.com/watch?t=624&v=R8O8Y6xP79w)

actually dictate when that happens

* [10:26 - 10:28](https://www.youtube.com/watch?t=626&v=R8O8Y6xP79w)

I have to click on the transition.

* [10:31 - 10:32](https://www.youtube.com/watch?t=631&v=R8O8Y6xP79w)

Too close.

* [10:32 - 10:33](https://www.youtube.com/watch?t=632&v=R8O8Y6xP79w)

There we go.

* [10:33 - 10:36](https://www.youtube.com/watch?t=633&v=R8O8Y6xP79w)

I'm going to click and you'll see it turn blue

* [10:36 - 10:39](https://www.youtube.com/watch?t=636&v=R8O8Y6xP79w)

and so now I have selected

* [10:39 - 10:40](https://www.youtube.com/watch?t=639&v=R8O8Y6xP79w)

the transition between the two.

* [10:40 - 10:42](https://www.youtube.com/watch?t=640&v=R8O8Y6xP79w)

And once I've done that over in the inspector view we get

* [10:42 - 10:45](https://www.youtube.com/watch?t=642&v=R8O8Y6xP79w)

the properties of this transition

* [10:45 - 10:48](https://www.youtube.com/watch?t=645&v=R8O8Y6xP79w)

and what I'm interested in is

* [10:49 - 10:51](https://www.youtube.com/watch?t=649&v=R8O8Y6xP79w)

is down on the bottom we have these conditions.

* [10:51 - 10:54](https://www.youtube.com/watch?t=651&v=R8O8Y6xP79w)

What is the condition of this transition?

* [10:54 - 10:56](https://www.youtube.com/watch?t=654&v=R8O8Y6xP79w)

And so what I'm going to do is

* [10:56 - 10:58](https://www.youtube.com/watch?t=656&v=R8O8Y6xP79w)

click this drop down that says Exit Time

* [10:58 - 11:00](https://www.youtube.com/watch?t=658&v=R8O8Y6xP79w)

and I'm going to select IsWalking

* [11:01 - 11:02](https://www.youtube.com/watch?t=661&v=R8O8Y6xP79w)

and I'm going to leave that as true.

* [11:02 - 11:04](https://www.youtube.com/watch?t=662&v=R8O8Y6xP79w)

So the way you read this is you are transitioning

* [11:04 - 11:06](https://www.youtube.com/watch?t=664&v=R8O8Y6xP79w)

from idle to move when IsWalking

* [11:06 - 11:08](https://www.youtube.com/watch?t=666&v=R8O8Y6xP79w)

equals true.

* [11:10 - 11:12](https://www.youtube.com/watch?t=670&v=R8O8Y6xP79w)

So now what I'm going to do

* [11:12 - 11:15](https://www.youtube.com/watch?t=672&v=R8O8Y6xP79w)

is I'm just going to do the exact opposite,

* [11:15 - 11:18](https://www.youtube.com/watch?t=675&v=R8O8Y6xP79w)

so I'm going to right click on move

* [11:18 - 11:21](https://www.youtube.com/watch?t=678&v=R8O8Y6xP79w)

make transition, get my fun rodeo arrow,

* [11:21 - 11:22](https://www.youtube.com/watch?t=681&v=R8O8Y6xP79w)

now I'm going to click on idle,

* [11:22 - 11:24](https://www.youtube.com/watch?t=682&v=R8O8Y6xP79w)

so this is stating that I am able to move

* [11:24 - 11:27](https://www.youtube.com/watch?t=684&v=R8O8Y6xP79w)

from the move state back to the idle state.

* [11:27 - 11:29](https://www.youtube.com/watch?t=687&v=R8O8Y6xP79w)

and I'm sure that you can all guess what

* [11:29 - 11:31](https://www.youtube.com/watch?t=689&v=R8O8Y6xP79w)

the condition for that is going to be but we'll

* [11:31 - 11:34](https://www.youtube.com/watch?t=691&v=R8O8Y6xP79w)

go through it anyway, I'm going to select Conditions

* [11:35 - 11:37](https://www.youtube.com/watch?t=695&v=R8O8Y6xP79w)

IsWalking equals false.

* [11:38 - 11:40](https://www.youtube.com/watch?t=698&v=R8O8Y6xP79w)

So if the player is walking we play the walking animation.

* [11:40 - 11:42](https://www.youtube.com/watch?t=700&v=R8O8Y6xP79w)

If the player is not walking we don't,

* [11:42 - 11:44](https://www.youtube.com/watch?t=702&v=R8O8Y6xP79w)

we play the idle animation.

* [11:45 - 11:47](https://www.youtube.com/watch?t=705&v=R8O8Y6xP79w)

Finally what I want to do is

* [11:47 - 11:50](https://www.youtube.com/watch?t=707&v=R8O8Y6xP79w)

I am going to create one more transition,

* [11:50 - 11:52](https://www.youtube.com/watch?t=710&v=R8O8Y6xP79w)

this time we want the player to be able to die.

* [11:52 - 11:54](https://www.youtube.com/watch?t=712&v=R8O8Y6xP79w)

So to do that we're not going

* [11:54 - 11:57](https://www.youtube.com/watch?t=714&v=R8O8Y6xP79w)

to transition from idle or move or death

* [11:57 - 11:59](https://www.youtube.com/watch?t=717&v=R8O8Y6xP79w)

because we can theoretically die

* [11:59 - 12:01](https://www.youtube.com/watch?t=719&v=R8O8Y6xP79w)

in any state depending on whichever animation is

* [12:01 - 12:02](https://www.youtube.com/watch?t=721&v=R8O8Y6xP79w)

currently going on.

* [12:02 - 12:06](https://www.youtube.com/watch?t=722&v=R8O8Y6xP79w)

So we are going to use the Any state.

* [12:06 - 12:08](https://www.youtube.com/watch?t=726&v=R8O8Y6xP79w)

And by that I mean the actually green any state,

* [12:08 - 12:11](https://www.youtube.com/watch?t=728&v=R8O8Y6xP79w)

I don't mean you're going to transition from any state you want.

* [12:11 - 12:13](https://www.youtube.com/watch?t=731&v=R8O8Y6xP79w)

So the one that says Any state.

* [12:13 - 12:15](https://www.youtube.com/watch?t=733&v=R8O8Y6xP79w)

So I'm going to right click on that and

* [12:15 - 12:17](https://www.youtube.com/watch?t=735&v=R8O8Y6xP79w)

I only have one option and that's Make Transition

* [12:17 - 12:19](https://www.youtube.com/watch?t=737&v=R8O8Y6xP79w)

and I am going to transition from

* [12:19 - 12:22](https://www.youtube.com/watch?t=739&v=R8O8Y6xP79w)

Any state to Death, so no matter what state

* [12:22 - 12:24](https://www.youtube.com/watch?t=742&v=R8O8Y6xP79w)

you're currently in if you die, you die.

* [12:25 - 12:27](https://www.youtube.com/watch?t=745&v=R8O8Y6xP79w)

I'm going to select that transition,

* [12:27 - 12:29](https://www.youtube.com/watch?t=747&v=R8O8Y6xP79w)

you'll see it turn blue

* [12:29 - 12:31](https://www.youtube.com/watch?t=749&v=R8O8Y6xP79w)

and I'm going to set my condition to be

* [12:33 - 12:34](https://www.youtube.com/watch?t=753&v=R8O8Y6xP79w)

Die.

* [12:34 - 12:36](https://www.youtube.com/watch?t=754&v=R8O8Y6xP79w)

Now since it's a trigger I don't need to

* [12:36 - 12:39](https://www.youtube.com/watch?t=756&v=R8O8Y6xP79w)

specify true, false or a value like that,

* [12:39 - 12:40](https://www.youtube.com/watch?t=759&v=R8O8Y6xP79w)

it's just if Die get's triggered

* [12:40 - 12:44](https://www.youtube.com/watch?t=760&v=R8O8Y6xP79w)

we immediately switch in to the death animation.

* [12:44 - 12:47](https://www.youtube.com/watch?t=764&v=R8O8Y6xP79w)

The next thing we need to do with this player character

* [12:47 - 12:50](https://www.youtube.com/watch?t=767&v=R8O8Y6xP79w)

is to give him a physical presence in the scene.

* [12:50 - 12:52](https://www.youtube.com/watch?t=770&v=R8O8Y6xP79w)

So if you change from your animator window

* [12:53 - 12:56](https://www.youtube.com/watch?t=773&v=R8O8Y6xP79w)

back to the scene view using the tab at the top

* [12:56 - 12:59](https://www.youtube.com/watch?t=776&v=R8O8Y6xP79w)

then you can select the player.

* [12:59 - 13:01](https://www.youtube.com/watch?t=779&v=R8O8Y6xP79w)

We're going to add a rigidbody.

* [13:01 - 13:04](https://www.youtube.com/watch?t=781&v=R8O8Y6xP79w)

A rigidbody component is something that allows

* [13:04 - 13:06](https://www.youtube.com/watch?t=784&v=R8O8Y6xP79w)

the physics engine of Unity to be applied to the object.

* [13:08 - 13:10](https://www.youtube.com/watch?t=788&v=R8O8Y6xP79w)

We are going to click Add Component

* [13:10 - 13:11](https://www.youtube.com/watch?t=790&v=R8O8Y6xP79w)

and choose Physics

* [13:12 - 13:14](https://www.youtube.com/watch?t=792&v=R8O8Y6xP79w)

and Rigidbody.

* [13:14 - 13:18](https://www.youtube.com/watch?t=794&v=R8O8Y6xP79w)

It's important that you don't select Physics 2D

* [13:18 - 13:21](https://www.youtube.com/watch?t=798&v=R8O8Y6xP79w)

Rigidbody 2D, we're doing 3D physics

* [13:21 - 13:22](https://www.youtube.com/watch?t=801&v=R8O8Y6xP79w)

so just physics.

* [13:23 - 13:26](https://www.youtube.com/watch?t=803&v=R8O8Y6xP79w)

So then what we're going to do, because we don't want

* [13:26 - 13:29](https://www.youtube.com/watch?t=806&v=R8O8Y6xP79w)

this to slow down over time

* [13:29 - 13:31](https://www.youtube.com/watch?t=809&v=R8O8Y6xP79w)

we're going to set the drag and angular drag

* [13:31 - 13:33](https://www.youtube.com/watch?t=811&v=R8O8Y6xP79w)

to infinity.

* [13:33 - 13:35](https://www.youtube.com/watch?t=813&v=R8O8Y6xP79w)

So you can do this actually by just typing

* [13:35 - 13:39](https://www.youtube.com/watch?t=815&v=R8O8Y6xP79w)

INF in the drag box and hitting return.

* [13:39 - 13:41](https://www.youtube.com/watch?t=819&v=R8O8Y6xP79w)

If you've done it correctly you'll see a capitalised

* [13:41 - 13:43](https://www.youtube.com/watch?t=821&v=R8O8Y6xP79w)

infinity.

* [13:44 - 13:46](https://www.youtube.com/watch?t=824&v=R8O8Y6xP79w)

We do want to use gravity, we want to keep the player

* [13:46 - 13:50](https://www.youtube.com/watch?t=826&v=R8O8Y6xP79w)

firmly grounded, despite this being a dream sequence.

* [13:50 - 13:52](https://www.youtube.com/watch?t=830&v=R8O8Y6xP79w)

And we do want to use

* [13:52 - 13:54](https://www.youtube.com/watch?t=832&v=R8O8Y6xP79w)

constraints, so basically we're going to use

* [13:54 - 13:56](https://www.youtube.com/watch?t=834&v=R8O8Y6xP79w)

constraints to ensure that the player

* [13:56 - 14:00](https://www.youtube.com/watch?t=836&v=R8O8Y6xP79w)

character doesn't fall forward or fall over any

* [14:00 - 14:02](https://www.youtube.com/watch?t=840&v=R8O8Y6xP79w)

different directions, and we also want

* [14:02 - 14:05](https://www.youtube.com/watch?t=842&v=R8O8Y6xP79w)

to freeze the Y position so he doesn't sink through the floor

* [14:05 - 14:08](https://www.youtube.com/watch?t=845&v=R8O8Y6xP79w)

or jump up or anything like that.

* [14:08 - 14:11](https://www.youtube.com/watch?t=848&v=R8O8Y6xP79w)

In Freeze Position we're going to choose the Y coordinate

* [14:11 - 14:16](https://www.youtube.com/watch?t=851&v=R8O8Y6xP79w)

and Freeze Rotation X and Z or Zee.

* [14:16 - 14:19](https://www.youtube.com/watch?t=856&v=R8O8Y6xP79w)

You'll have to expand constraints if it's not currently expanded.

* [14:19 - 14:21](https://www.youtube.com/watch?t=859&v=R8O8Y6xP79w)

Yep, sorry, you need to expand constraints,

* [14:21 - 14:23](https://www.youtube.com/watch?t=861&v=R8O8Y6xP79w)

if you can't see those properties you should see them

* [14:23 - 14:24](https://www.youtube.com/watch?t=863&v=R8O8Y6xP79w)

at the bottom.

* [14:24 - 14:27](https://www.youtube.com/watch?t=864&v=R8O8Y6xP79w)

Next we need to make sure things can actually

* [14:27 - 14:29](https://www.youtube.com/watch?t=867&v=R8O8Y6xP79w)

bump in to the character because currently

* [14:29 - 14:31](https://www.youtube.com/watch?t=869&v=R8O8Y6xP79w)

he reacts to physics

* [14:31 - 14:33](https://www.youtube.com/watch?t=871&v=R8O8Y6xP79w)

but if he doesn't bump in to anything

* [14:33 - 14:34](https://www.youtube.com/watch?t=873&v=R8O8Y6xP79w)

nothing's going to happen.

* [14:34 - 14:36](https://www.youtube.com/watch?t=874&v=R8O8Y6xP79w)

So if you go to Add Component

* [14:37 - 14:39](https://www.youtube.com/watch?t=877&v=R8O8Y6xP79w)

and then Physics

* [14:39 - 14:40](https://www.youtube.com/watch?t=879&v=R8O8Y6xP79w)

and then there's a capsule collider along with

* [14:40 - 14:42](https://www.youtube.com/watch?t=880&v=R8O8Y6xP79w)

all the other colliders there.

* [14:42 - 14:44](https://www.youtube.com/watch?t=882&v=R8O8Y6xP79w)

We need to give it specific settings

* [14:44 - 14:48](https://www.youtube.com/watch?t=884&v=R8O8Y6xP79w)

so we make sure that the capsule covers the player.

* [14:48 - 14:50](https://www.youtube.com/watch?t=888&v=R8O8Y6xP79w)

So if you change the centre

* [14:50 - 14:52](https://www.youtube.com/watch?t=890&v=R8O8Y6xP79w)

to 0.2 in the X

* [14:53 - 14:56](https://www.youtube.com/watch?t=893&v=R8O8Y6xP79w)

0.6 in Y and leave the Z as 0

* [14:56 - 14:58](https://www.youtube.com/watch?t=896&v=R8O8Y6xP79w)

or Zee a 0.

* [14:58 - 15:00](https://www.youtube.com/watch?t=898&v=R8O8Y6xP79w)

We also need to change the height

* [15:00 - 15:04](https://www.youtube.com/watch?t=900&v=R8O8Y6xP79w)

to 1.2, so what that's going to mean is that

* [15:04 - 15:06](https://www.youtube.com/watch?t=904&v=R8O8Y6xP79w)

this sort of leaning over character thing here

* [15:06 - 15:08](https://www.youtube.com/watch?t=906&v=R8O8Y6xP79w)

he's got a little bit of an X offset so that the

* [15:08 - 15:10](https://www.youtube.com/watch?t=908&v=R8O8Y6xP79w)

capsules going to cover him nicely.

* [15:10 - 15:13](https://www.youtube.com/watch?t=910&v=R8O8Y6xP79w)

Next we need the player to make

* [15:13 - 15:15](https://www.youtube.com/watch?t=913&v=R8O8Y6xP79w)

a little yelping sound when he gets hurt.

* [15:16 - 15:18](https://www.youtube.com/watch?t=916&v=R8O8Y6xP79w)

So we're going to add an audio source

* [15:18 - 15:20](https://www.youtube.com/watch?t=918&v=R8O8Y6xP79w)

component, so if you go to Add Component

* [15:20 - 15:23](https://www.youtube.com/watch?t=920&v=R8O8Y6xP79w)

Audio, and then find Audio Source

* [15:24 - 15:26](https://www.youtube.com/watch?t=924&v=R8O8Y6xP79w)

and we're going to change

* [15:26 - 15:28](https://www.youtube.com/watch?t=926&v=R8O8Y6xP79w)

the audio clip from None, using the little

* [15:28 - 15:30](https://www.youtube.com/watch?t=928&v=R8O8Y6xP79w)

circle select by it

* [15:31 - 15:33](https://www.youtube.com/watch?t=931&v=R8O8Y6xP79w)

to Player Hurt.

* [15:34 - 15:36](https://www.youtube.com/watch?t=934&v=R8O8Y6xP79w)

When it opens the context sensitive menu

* [15:36 - 15:38](https://www.youtube.com/watch?t=936&v=R8O8Y6xP79w)

you can see Player Hurt there.

* [15:38 - 15:40](https://www.youtube.com/watch?t=938&v=R8O8Y6xP79w)

One thing about the selection window is

* [15:40 - 15:42](https://www.youtube.com/watch?t=940&v=R8O8Y6xP79w)

that you can double click to close

* [15:42 - 15:44](https://www.youtube.com/watch?t=942&v=R8O8Y6xP79w)

it at the same time, if you want to assign something

* [15:44 - 15:46](https://www.youtube.com/watch?t=944&v=R8O8Y6xP79w)

you can open up the circle select, double click

* [15:46 - 15:48](https://www.youtube.com/watch?t=946&v=R8O8Y6xP79w)

will also close the window.

* [15:48 - 15:50](https://www.youtube.com/watch?t=948&v=R8O8Y6xP79w)

Once other thing I'm going to quickly do because we've got these

* [15:50 - 15:53](https://www.youtube.com/watch?t=950&v=R8O8Y6xP79w)

settings done is I'm going to close the rigidbody

* [15:53 - 15:55](https://www.youtube.com/watch?t=953&v=R8O8Y6xP79w)

or collapse it up using the arrow next

* [15:55 - 15:58](https://www.youtube.com/watch?t=955&v=R8O8Y6xP79w)

to it just so that we can see the ones below it.

* [15:58 - 16:01](https://www.youtube.com/watch?t=958&v=R8O8Y6xP79w)

We do not want the player to make a yelp sound

* [16:01 - 16:03](https://www.youtube.com/watch?t=961&v=R8O8Y6xP79w)

on awake, so we're going to uncheck Play On Awake

* [16:03 - 16:06](https://www.youtube.com/watch?t=963&v=R8O8Y6xP79w)

You'll know that if you haven't unchecked that

* [16:06 - 16:08](https://www.youtube.com/watch?t=966&v=R8O8Y6xP79w)

when you start the game it'll go 'oh'.

* [16:08 - 16:11](https://www.youtube.com/watch?t=968&v=R8O8Y6xP79w)

If it does that go back to this

* [16:11 - 16:13](https://www.youtube.com/watch?t=971&v=R8O8Y6xP79w)

and uncheck Play On Awake.

* [16:13 - 16:16](https://www.youtube.com/watch?t=973&v=R8O8Y6xP79w)

So we're going to find the Player Movement script

* [16:16 - 16:19](https://www.youtube.com/watch?t=976&v=R8O8Y6xP79w)

and that's in the Scripts - Player folder.

* [16:19 - 16:22](https://www.youtube.com/watch?t=979&v=R8O8Y6xP79w)

So if you look in the project panel, find Scripts, expand that

* [16:22 - 16:24](https://www.youtube.com/watch?t=982&v=R8O8Y6xP79w)

and then click on Player, you'll see on the right

* [16:24 - 16:27](https://www.youtube.com/watch?t=984&v=R8O8Y6xP79w)

hand side the different player scripts that we've got.

* [16:27 - 16:29](https://www.youtube.com/watch?t=987&v=R8O8Y6xP79w)

We've got an empty class called

* [16:29 - 16:31](https://www.youtube.com/watch?t=989&v=R8O8Y6xP79w)

Player Movement and we're going to go through

* [16:31 - 16:32](https://www.youtube.com/watch?t=991&v=R8O8Y6xP79w)

making that now.

* [16:32 - 16:34](https://www.youtube.com/watch?t=992&v=R8O8Y6xP79w)

You can assign a script a number of different ways.

* [16:34 - 16:36](https://www.youtube.com/watch?t=994&v=R8O8Y6xP79w)

A script is just a component

* [16:36 - 16:38](https://www.youtube.com/watch?t=996&v=R8O8Y6xP79w)

like any other component.

* [16:38 - 16:40](https://www.youtube.com/watch?t=998&v=R8O8Y6xP79w)

But what we're going to do is we're going to drag and drop

* [16:40 - 16:42](https://www.youtube.com/watch?t=1000&v=R8O8Y6xP79w)

for this one, so I'm going to grab

* [16:42 - 16:44](https://www.youtube.com/watch?t=1002&v=R8O8Y6xP79w)

my Player Movement script, I'm going to drag it

* [16:44 - 16:48](https://www.youtube.com/watch?t=1004&v=R8O8Y6xP79w)

up and drop if on to the player game object.

* [16:48 - 16:50](https://www.youtube.com/watch?t=1008&v=R8O8Y6xP79w)

When that's done you should see that it appears

* [16:50 - 16:53](https://www.youtube.com/watch?t=1010&v=R8O8Y6xP79w)

as a component at the bottom of the list.

* [16:53 - 16:55](https://www.youtube.com/watch?t=1013&v=R8O8Y6xP79w)

Be sure to save your scene before we go on to this next part

* [16:55 - 16:57](https://www.youtube.com/watch?t=1015&v=R8O8Y6xP79w)

too because we're in the beta software.

* [16:59 - 17:02](https://www.youtube.com/watch?t=1019&v=R8O8Y6xP79w)

So first of al double click it for opening and

* [17:02 - 17:04](https://www.youtube.com/watch?t=1022&v=R8O8Y6xP79w)

you should get mono develop to come up.

* [17:04 - 17:06](https://www.youtube.com/watch?t=1024&v=R8O8Y6xP79w)

There's a number of different ways to open a script.

* [17:06 - 17:08](https://www.youtube.com/watch?t=1026&v=R8O8Y6xP79w)

You can either double click the icon

* [17:08 - 17:10](https://www.youtube.com/watch?t=1028&v=R8O8Y6xP79w)

in the project panel, you can

* [17:10 - 17:12](https://www.youtube.com/watch?t=1030&v=R8O8Y6xP79w)

click open with it selected

* [17:12 - 17:14](https://www.youtube.com/watch?t=1032&v=R8O8Y6xP79w)

at the top of the inspector.

* [17:14 - 17:16](https://www.youtube.com/watch?t=1034&v=R8O8Y6xP79w)

Or one final way is to, when it's

* [17:16 - 17:18](https://www.youtube.com/watch?t=1036&v=R8O8Y6xP79w)

applied as a component

* [17:18 - 17:20](https://www.youtube.com/watch?t=1038&v=R8O8Y6xP79w)

you can actually click the cog icon and choose

* [17:20 - 17:21](https://www.youtube.com/watch?t=1040&v=R8O8Y6xP79w)

Edit Script.

* [17:22 - 17:24](https://www.youtube.com/watch?t=1042&v=R8O8Y6xP79w)

If you give it a moment it's going to open up that

* [17:24 - 17:26](https://www.youtube.com/watch?t=1044&v=R8O8Y6xP79w)

script editor for Unity which is

* [17:26 - 17:28](https://www.youtube.com/watch?t=1046&v=R8O8Y6xP79w)

Mono Develop.

* [17:28 - 17:30](https://www.youtube.com/watch?t=1048&v=R8O8Y6xP79w)

All of this is going to be done within

* [17:30 - 17:32](https://www.youtube.com/watch?t=1050&v=R8O8Y6xP79w)

the class, so you notice there's a pair

* [17:32 - 17:36](https://www.youtube.com/watch?t=1052&v=R8O8Y6xP79w)

of early braces, or brackets?

* [17:36 - 17:38](https://www.youtube.com/watch?t=1056&v=R8O8Y6xP79w)

What we're going to start off by doing is

* [17:38 - 17:40](https://www.youtube.com/watch?t=1058&v=R8O8Y6xP79w)

making some variables

* [17:40 - 17:43](https://www.youtube.com/watch?t=1060&v=R8O8Y6xP79w)

that we can adjust throughout the course of class.

* [17:43 - 17:46](https://www.youtube.com/watch?t=1063&v=R8O8Y6xP79w)

We're always going to start off with our public ones at the top.

* [17:46 - 17:48](https://www.youtube.com/watch?t=1066&v=R8O8Y6xP79w)

and then underneath with private ones.

* [17:48 - 17:51](https://www.youtube.com/watch?t=1068&v=R8O8Y6xP79w)

So we'll start off with a public float

* [17:51 - 17:53](https://www.youtube.com/watch?t=1071&v=R8O8Y6xP79w)

called Speed, which is obviously

* [17:53 - 17:56](https://www.youtube.com/watch?t=1073&v=R8O8Y6xP79w)

going to control how fast the player is.

* [17:56 - 17:59](https://www.youtube.com/watch?t=1076&v=R8O8Y6xP79w)

I'm going to give it a default value of 6.

* [17:59 - 18:01](https://www.youtube.com/watch?t=1079&v=R8O8Y6xP79w)

So the F on the end there is just

* [18:01 - 18:03](https://www.youtube.com/watch?t=1081&v=R8O8Y6xP79w)

saying that this is a floating point variable.

* [18:04 - 18:07](https://www.youtube.com/watch?t=1084&v=R8O8Y6xP79w)

Now we move on to the private variables.

* [18:07 - 18:09](https://www.youtube.com/watch?t=1087&v=R8O8Y6xP79w)

So I could go ahead and type

* [18:09 - 18:12](https://www.youtube.com/watch?t=1089&v=R8O8Y6xP79w)

vector3 because vector2 is the first thing it suggests

* [18:12 - 18:14](https://www.youtube.com/watch?t=1092&v=R8O8Y6xP79w)

I could accidentally press return and get that

* [18:14 - 18:17](https://www.youtube.com/watch?t=1094&v=R8O8Y6xP79w)

but I don't, I want a vector3 type of variable.

* [18:17 - 18:19](https://www.youtube.com/watch?t=1097&v=R8O8Y6xP79w)

So these variables we're declaring

* [18:19 - 18:21](https://www.youtube.com/watch?t=1099&v=R8O8Y6xP79w)

the type of them first, if you're familiar with Java Script

* [18:21 - 18:23](https://www.youtube.com/watch?t=1101&v=R8O8Y6xP79w)

you'll remember that it does it the other way round.

* [18:23 - 18:25](https://www.youtube.com/watch?t=1103&v=R8O8Y6xP79w)

So in C# we say the type of variable first

* [18:25 - 18:27](https://www.youtube.com/watch?t=1105&v=R8O8Y6xP79w)

and then the name.

* [18:27 - 18:29](https://www.youtube.com/watch?t=1107&v=R8O8Y6xP79w)

So this one's going to be called Movement and

* [18:29 - 18:31](https://www.youtube.com/watch?t=1109&v=R8O8Y6xP79w)

we're going to use that to store

* [18:31 - 18:34](https://www.youtube.com/watch?t=1111&v=R8O8Y6xP79w)

the movement that we want to apply to the player.

* [18:34 - 18:36](https://www.youtube.com/watch?t=1114&v=R8O8Y6xP79w)

The next one we're going to have a reference

* [18:36 - 18:38](https://www.youtube.com/watch?t=1116&v=R8O8Y6xP79w)

to the animator component

* [18:38 - 18:39](https://www.youtube.com/watch?t=1118&v=R8O8Y6xP79w)

and we'll call that Anim.

* [18:40 - 18:43](https://www.youtube.com/watch?t=1120&v=R8O8Y6xP79w)

We're also going to have a reference to

* [18:43 - 18:44](https://www.youtube.com/watch?t=1123&v=R8O8Y6xP79w)

the rigidbody component

* [18:45 - 18:48](https://www.youtube.com/watch?t=1125&v=R8O8Y6xP79w)

and we'll call that Player Rigidbody.

* [18:50 - 18:53](https://www.youtube.com/watch?t=1130&v=R8O8Y6xP79w)

So the next one is an integer

* [18:53 - 18:55](https://www.youtube.com/watch?t=1133&v=R8O8Y6xP79w)

called Floor Mask, now I'm going to explain this one.

* [18:55 - 18:57](https://www.youtube.com/watch?t=1135&v=R8O8Y6xP79w)

If you remember earlier we made that floor

* [18:57 - 18:59](https://www.youtube.com/watch?t=1137&v=R8O8Y6xP79w)

quad, that big square that we just left

* [18:59 - 19:01](https://www.youtube.com/watch?t=1139&v=R8O8Y6xP79w)

on the floor, that's the thing that we want to raycast

* [19:01 - 19:04](https://www.youtube.com/watch?t=1141&v=R8O8Y6xP79w)

in to and the way we tell our raycast

* [19:04 - 19:06](https://www.youtube.com/watch?t=1144&v=R8O8Y6xP79w)

that we only want to hit that floor is we use

* [19:06 - 19:09](https://www.youtube.com/watch?t=1146&v=R8O8Y6xP79w)

a layermask, which is stored as an integer.

* [19:09 - 19:11](https://www.youtube.com/watch?t=1149&v=R8O8Y6xP79w)

If I hit save right now, basically we designed

* [19:11 - 19:13](https://www.youtube.com/watch?t=1151&v=R8O8Y6xP79w)

this project on a PC,

* [19:13 - 19:15](https://www.youtube.com/watch?t=1153&v=R8O8Y6xP79w)

we've opened it on a Mac,

* [19:15 - 19:17](https://www.youtube.com/watch?t=1155&v=R8O8Y6xP79w)

files have different line endings, it doesn't matter

* [19:17 - 19:19](https://www.youtube.com/watch?t=1157&v=R8O8Y6xP79w)

at all, just hit Convert, everything will be fine.

* [19:19 - 19:21](https://www.youtube.com/watch?t=1159&v=R8O8Y6xP79w)

So the last private variable that we're going to make

* [19:21 - 19:23](https://www.youtube.com/watch?t=1161&v=R8O8Y6xP79w)

is a float

* [19:23 - 19:26](https://www.youtube.com/watch?t=1163&v=R8O8Y6xP79w)

called camRayLength.

* [19:26 - 19:28](https://www.youtube.com/watch?t=1166&v=R8O8Y6xP79w)

That's going to be the length of the ray

* [19:28 - 19:30](https://www.youtube.com/watch?t=1168&v=R8O8Y6xP79w)

that we cast from the camera,

* [19:30 - 19:32](https://www.youtube.com/watch?t=1170&v=R8O8Y6xP79w)

and we're going to give that a value of 100.

* [19:32 - 19:34](https://www.youtube.com/watch?t=1172&v=R8O8Y6xP79w)

The next thing that we're going to do is setup

* [19:34 - 19:36](https://www.youtube.com/watch?t=1174&v=R8O8Y6xP79w)

those references.

* [19:36 - 19:38](https://www.youtube.com/watch?t=1176&v=R8O8Y6xP79w)

We're going to setup the references

* [19:38 - 19:40](https://www.youtube.com/watch?t=1178&v=R8O8Y6xP79w)

in the awake function

* [19:42 - 19:44](https://www.youtube.com/watch?t=1182&v=R8O8Y6xP79w)

Some of you will be familiar with

* [19:44 - 19:47](https://www.youtube.com/watch?t=1184&v=R8O8Y6xP79w)

the start function, awake is very similar

* [19:47 - 19:49](https://www.youtube.com/watch?t=1187&v=R8O8Y6xP79w)

but it gets called regardless of whether

* [19:49 - 19:51](https://www.youtube.com/watch?t=1189&v=R8O8Y6xP79w)

the script is enabled or not.

* [19:51 - 19:54](https://www.youtube.com/watch?t=1191&v=R8O8Y6xP79w)

So it's good for setting up references and things like that.

* [19:55 - 19:57](https://www.youtube.com/watch?t=1195&v=R8O8Y6xP79w)

We're going to start off by setting

* [19:57 - 19:59](https://www.youtube.com/watch?t=1197&v=R8O8Y6xP79w)

up our floor mask

* [19:59 - 20:03](https://www.youtube.com/watch?t=1199&v=R8O8Y6xP79w)

and we're going to use LayerMask.GetMask

* [20:03 - 20:05](https://www.youtube.com/watch?t=1203&v=R8O8Y6xP79w)

so then we can parse in a string

* [20:05 - 20:07](https://www.youtube.com/watch?t=1205&v=R8O8Y6xP79w)

which is just a word or a sentence

* [20:08 - 20:10](https://www.youtube.com/watch?t=1208&v=R8O8Y6xP79w)

of the layer that we're going to get.

* [20:10 - 20:13](https://www.youtube.com/watch?t=1210&v=R8O8Y6xP79w)

So we put the floor quad

* [20:13 - 20:17](https://www.youtube.com/watch?t=1213&v=R8O8Y6xP79w)

on the floor layer so we're going to get mask from floor.

* [20:18 - 20:21](https://www.youtube.com/watch?t=1218&v=R8O8Y6xP79w)

Then we're going to use GetComponent to

* [20:21 - 20:25](https://www.youtube.com/watch?t=1221&v=R8O8Y6xP79w)

get the references to the animator, like that.

* [20:26 - 20:28](https://www.youtube.com/watch?t=1226&v=R8O8Y6xP79w)

You'll notice a little angled brackets there,

* [20:28 - 20:31](https://www.youtube.com/watch?t=1228&v=R8O8Y6xP79w)

that's just denoting the type of what we're looking for.

* [20:31 - 20:33](https://www.youtube.com/watch?t=1231&v=R8O8Y6xP79w)

In this case we're looking for an animator so we write .

* [20:33 - 20:36](https://www.youtube.com/watch?t=1233&v=R8O8Y6xP79w)

If we were looking for a rigidbody we'd write and so on.

* [20:39 - 20:41](https://www.youtube.com/watch?t=1239&v=R8O8Y6xP79w)

So we write here.

* [20:42 - 20:45](https://www.youtube.com/watch?t=1242&v=R8O8Y6xP79w)

And that's all we need to do to setup the references.

* [20:46 - 20:48](https://www.youtube.com/watch?t=1246&v=R8O8Y6xP79w)

Next what we're going to do is

* [20:48 - 20:51](https://www.youtube.com/watch?t=1248&v=R8O8Y6xP79w)

put a call to fixed update.

* [20:51 - 20:53](https://www.youtube.com/watch?t=1251&v=R8O8Y6xP79w)

Fixed update is a function

* [20:53 - 20:56](https://www.youtube.com/watch?t=1253&v=R8O8Y6xP79w)

that Unity will automatically call on it's scripts

* [20:57 - 21:00](https://www.youtube.com/watch?t=1257&v=R8O8Y6xP79w)

that fires every physics update.

* [21:01 - 21:05](https://www.youtube.com/watch?t=1261&v=R8O8Y6xP79w)

Unity runs on a number of updates.

* [21:05 - 21:07](https://www.youtube.com/watch?t=1265&v=R8O8Y6xP79w)

The normal update system that you're familiar with

* [21:07 - 21:09](https://www.youtube.com/watch?t=1267&v=R8O8Y6xP79w)

runs along with rendering.

* [21:09 - 21:12](https://www.youtube.com/watch?t=1269&v=R8O8Y6xP79w)

The fixed update runs with physics.

* [21:12 - 21:14](https://www.youtube.com/watch?t=1272&v=R8O8Y6xP79w)

So since we're moving a physics character

* [21:14 - 21:16](https://www.youtube.com/watch?t=1274&v=R8O8Y6xP79w)

he's got a rigidbody attached we're going to

* [21:16 - 21:18](https://www.youtube.com/watch?t=1276&v=R8O8Y6xP79w)

use fixed update to move him.

* [21:18 - 21:20](https://www.youtube.com/watch?t=1278&v=R8O8Y6xP79w)

So what we're going to do is get the input

* [21:20 - 21:23](https://www.youtube.com/watch?t=1280&v=R8O8Y6xP79w)

from the horizontal and vertical axis,

* [21:23 - 21:25](https://www.youtube.com/watch?t=1283&v=R8O8Y6xP79w)

but we're not going to get the standard input,

* [21:25 - 21:27](https://www.youtube.com/watch?t=1285&v=R8O8Y6xP79w)

we're going to get the raw input.

* [21:27 - 21:31](https://www.youtube.com/watch?t=1287&v=R8O8Y6xP79w)

So whereas a normal axis would have values

* [21:31 - 21:33](https://www.youtube.com/watch?t=1291&v=R8O8Y6xP79w)

varying between -1 and 1

* [21:33 - 21:36](https://www.youtube.com/watch?t=1293&v=R8O8Y6xP79w)

the raw axis will only have

* [21:36 - 21:39](https://www.youtube.com/watch?t=1296&v=R8O8Y6xP79w)

a value of -1, 0 or 1.

* [21:40 - 21:44](https://www.youtube.com/watch?t=1300&v=R8O8Y6xP79w)

It won't have any variation in between those.

* [21:44 - 21:46](https://www.youtube.com/watch?t=1304&v=R8O8Y6xP79w)

So what that means is that

* [21:46 - 21:48](https://www.youtube.com/watch?t=1306&v=R8O8Y6xP79w)

when we're controlling the character, rather than him

* [21:48 - 21:51](https://www.youtube.com/watch?t=1308&v=R8O8Y6xP79w)

slowly accelerating towards it's full speed

* [21:51 - 21:53](https://www.youtube.com/watch?t=1311&v=R8O8Y6xP79w)

he's going to immediately

* [21:53 - 21:55](https://www.youtube.com/watch?t=1313&v=R8O8Y6xP79w)

snap to full speed, which will give us a much

* [21:55 - 21:56](https://www.youtube.com/watch?t=1315&v=R8O8Y6xP79w)

more responsive feel.

* [21:56 - 21:59](https://www.youtube.com/watch?t=1316&v=R8O8Y6xP79w)

Just so you know, an axis is actually input.

* [21:59 - 22:02](https://www.youtube.com/watch?t=1319&v=R8O8Y6xP79w)

So these axis, horizontal

* [22:02 - 22:05](https://www.youtube.com/watch?t=1322&v=R8O8Y6xP79w)

vertical, jump, fire1, fire2,

* [22:05 - 22:07](https://www.youtube.com/watch?t=1325&v=R8O8Y6xP79w)

those are defaults within Unity,

* [22:07 - 22:09](https://www.youtube.com/watch?t=1327&v=R8O8Y6xP79w)

so if you're wondering what horizontal is it's

* [22:09 - 22:11](https://www.youtube.com/watch?t=1329&v=R8O8Y6xP79w)

already in there.

* [22:13 - 22:16](https://www.youtube.com/watch?t=1333&v=R8O8Y6xP79w)

So the horizontal axis basically maps

* [22:16 - 22:18](https://www.youtube.com/watch?t=1336&v=R8O8Y6xP79w)

to the A and D keys

* [22:18 - 22:20](https://www.youtube.com/watch?t=1338&v=R8O8Y6xP79w)

as well as the left and right arrow keys.

* [22:20 - 22:24](https://www.youtube.com/watch?t=1340&v=R8O8Y6xP79w)

Either of those manipulate the horizontal axis.

* [22:24 - 22:27](https://www.youtube.com/watch?t=1344&v=R8O8Y6xP79w)

Pressing the A key gives me a value of -1

* [22:27 - 22:30](https://www.youtube.com/watch?t=1347&v=R8O8Y6xP79w)

in the horizontal axis, pressing the D key

* [22:30 - 22:33](https://www.youtube.com/watch?t=1350&v=R8O8Y6xP79w)

gives me a value of 1 in the horizontal axis.

* [22:37 - 22:41](https://www.youtube.com/watch?t=1357&v=R8O8Y6xP79w)

Vertical is another axis, it's the W and S keys

* [22:41 - 22:43](https://www.youtube.com/watch?t=1361&v=R8O8Y6xP79w)

as well as the up and down arrows.

* [22:43 - 22:45](https://www.youtube.com/watch?t=1363&v=R8O8Y6xP79w)

Fire1 is your left mouse button

* [22:45 - 22:47](https://www.youtube.com/watch?t=1365&v=R8O8Y6xP79w)

or right control, so on and so forth.

* [22:47 - 22:49](https://www.youtube.com/watch?t=1367&v=R8O8Y6xP79w)

If you're curious you can go in the input manager,

* [22:49 - 22:51](https://www.youtube.com/watch?t=1369&v=R8O8Y6xP79w)

I think Will had that up there a second ago

* [22:51 - 22:54](https://www.youtube.com/watch?t=1371&v=R8O8Y6xP79w)

and that's where these axis exist and how we set them up.

* [22:54 - 22:56](https://www.youtube.com/watch?t=1374&v=R8O8Y6xP79w)

But the ones we're all using here are defaults

* [22:56 - 22:58](https://www.youtube.com/watch?t=1376&v=R8O8Y6xP79w)

so there's nothing special that you need

* [22:58 - 22:59](https://www.youtube.com/watch?t=1378&v=R8O8Y6xP79w)

to do to get those.

* [22:59 - 23:03](https://www.youtube.com/watch?t=1379&v=R8O8Y6xP79w)

Go ahead and put in the vertical axis as well,

* [23:03 - 23:05](https://www.youtube.com/watch?t=1383&v=R8O8Y6xP79w)

we're storing that as a float called V,

* [23:05 - 23:07](https://www.youtube.com/watch?t=1385&v=R8O8Y6xP79w)

so these are private variables within

* [23:07 - 23:09](https://www.youtube.com/watch?t=1387&v=R8O8Y6xP79w)

fixed update so we can use

* [23:09 - 23:12](https://www.youtube.com/watch?t=1389&v=R8O8Y6xP79w)

them within specifically fixed update.

* [23:12 - 23:14](https://www.youtube.com/watch?t=1392&v=R8O8Y6xP79w)

So remember that the variables that we created earlier

* [23:14 - 23:16](https://www.youtube.com/watch?t=1394&v=R8O8Y6xP79w)

are outside of these functions so we can use

* [23:16 - 23:18](https://www.youtube.com/watch?t=1396&v=R8O8Y6xP79w)

them within any of the functions in this script.

* [23:20 - 23:22](https://www.youtube.com/watch?t=1400&v=R8O8Y6xP79w)

Fixed update and awake are automatically

* [23:22 - 23:26](https://www.youtube.com/watch?t=1402&v=R8O8Y6xP79w)

called by Unity, they're mono-behaviour functions.

* [23:26 - 23:28](https://www.youtube.com/watch?t=1406&v=R8O8Y6xP79w)

But we can also make our own functions

* [23:28 - 23:32](https://www.youtube.com/watch?t=1408&v=R8O8Y6xP79w)

that we can call within those fixed update and awake.

* [23:32 - 23:34](https://www.youtube.com/watch?t=1412&v=R8O8Y6xP79w)

What we're going to do now is create a

* [23:34 - 23:37](https://www.youtube.com/watch?t=1414&v=R8O8Y6xP79w)

move function that we can call in fixed update later

* [23:37 - 23:38](https://www.youtube.com/watch?t=1417&v=R8O8Y6xP79w)

to move our character.

* [23:38 - 23:40](https://www.youtube.com/watch?t=1418&v=R8O8Y6xP79w)

We're basically going to split up the actual

* [23:40 - 23:42](https://www.youtube.com/watch?t=1420&v=R8O8Y6xP79w)

operations of those player movement script

* [23:42 - 23:45](https://www.youtube.com/watch?t=1422&v=R8O8Y6xP79w)

in to movement, turning and animation.

* [23:45 - 23:46](https://www.youtube.com/watch?t=1425&v=R8O8Y6xP79w)

We're going to put them in to separate functions

* [23:46 - 23:48](https://www.youtube.com/watch?t=1426&v=R8O8Y6xP79w)

to keep them all modular.

* [23:48 - 23:50](https://www.youtube.com/watch?t=1428&v=R8O8Y6xP79w)

If you make a Move function

* [23:50 - 23:52](https://www.youtube.com/watch?t=1430&v=R8O8Y6xP79w)

that's going to have 2 parameters,

* [23:52 - 23:54](https://www.youtube.com/watch?t=1432&v=R8O8Y6xP79w)

a float called H

* [23:55 - 23:56](https://www.youtube.com/watch?t=1435&v=R8O8Y6xP79w)

and a float called V

* [23:56 - 23:58](https://www.youtube.com/watch?t=1436&v=R8O8Y6xP79w)

and unsurprisingly those are going to be the input

* [23:58 - 24:00](https://www.youtube.com/watch?t=1438&v=R8O8Y6xP79w)

that we'll parse in to this function when we call it.

* [24:00 - 24:02](https://www.youtube.com/watch?t=1440&v=R8O8Y6xP79w)

We have this movement vector that we stored

* [24:02 - 24:04](https://www.youtube.com/watch?t=1442&v=R8O8Y6xP79w)

earlier and we want to set the value

* [24:04 - 24:08](https://www.youtube.com/watch?t=1444&v=R8O8Y6xP79w)

of that, so if you type movement.set

* [24:08 - 24:10](https://www.youtube.com/watch?t=1448&v=R8O8Y6xP79w)

then you get the chance to put each of the

* [24:10 - 24:13](https://www.youtube.com/watch?t=1450&v=R8O8Y6xP79w)

X, Y and Z components of those

* [24:13 - 24:16](https://www.youtube.com/watch?t=1453&v=R8O8Y6xP79w)

so we're going to use H for it's X component.

* [24:16 - 24:18](https://www.youtube.com/watch?t=1456&v=R8O8Y6xP79w)

We don't want any vertical components so we're

* [24:18 - 24:19](https://www.youtube.com/watch?t=1458&v=R8O8Y6xP79w)

going to put that as 0.

* [24:19 - 24:22](https://www.youtube.com/watch?t=1459&v=R8O8Y6xP79w)

We're going to use an F because it's a floating point.

* [24:23 - 24:26](https://www.youtube.com/watch?t=1463&v=R8O8Y6xP79w)

And then V for the Z component, so what that means is

* [24:26 - 24:28](https://www.youtube.com/watch?t=1466&v=R8O8Y6xP79w)

X and Z are flat along the ground.

* [24:29 - 24:31](https://www.youtube.com/watch?t=1469&v=R8O8Y6xP79w)

The horizontal and vertical movement that we give it

* [24:31 - 24:34](https://www.youtube.com/watch?t=1471&v=R8O8Y6xP79w)

will translate to lateral movement in the game.

* [24:34 - 24:36](https://www.youtube.com/watch?t=1474&v=R8O8Y6xP79w)

Now we've set that we have a bit of a

* [24:36 - 24:40](https://www.youtube.com/watch?t=1476&v=R8O8Y6xP79w)

problem because if you move

* [24:40 - 24:43](https://www.youtube.com/watch?t=1480&v=R8O8Y6xP79w)

just in the Z axis or just in the X axis

* [24:43 - 24:45](https://www.youtube.com/watch?t=1483&v=R8O8Y6xP79w)

then you've got a value of 1,

* [24:45 - 24:47](https://www.youtube.com/watch?t=1485&v=R8O8Y6xP79w)

like a size of 1 for that vector.

* [24:47 - 24:49](https://www.youtube.com/watch?t=1487&v=R8O8Y6xP79w)

However, if you use both then

* [24:49 - 24:51](https://www.youtube.com/watch?t=1489&v=R8O8Y6xP79w)

the length of the vector is different,

* [24:51 - 24:53](https://www.youtube.com/watch?t=1491&v=R8O8Y6xP79w)

it's 1.4,

* [24:53 - 24:55](https://www.youtube.com/watch?t=1493&v=R8O8Y6xP79w)

so we need to change that so that you don't

* [24:55 - 24:57](https://www.youtube.com/watch?t=1495&v=R8O8Y6xP79w)

get an advantage by moving diagonally.

* [24:57 - 25:00](https://www.youtube.com/watch?t=1497&v=R8O8Y6xP79w)

What we want to do is normalise that.

* [25:00 - 25:02](https://www.youtube.com/watch?t=1500&v=R8O8Y6xP79w)

So what that means is it's going to take

* [25:02 - 25:04](https://www.youtube.com/watch?t=1502&v=R8O8Y6xP79w)

a direction that we have

* [25:04 - 25:06](https://www.youtube.com/watch?t=1504&v=R8O8Y6xP79w)

but it's going to make sure that the size is always 1.

* [25:06 - 25:08](https://www.youtube.com/watch?t=1506&v=R8O8Y6xP79w)

Effectively make sure that the player moves at the same speed

* [25:08 - 25:11](https://www.youtube.com/watch?t=1508&v=R8O8Y6xP79w)

regardless of which key combination you use.

* [25:11 - 25:13](https://www.youtube.com/watch?t=1511&v=R8O8Y6xP79w)

We don't want it to move at a speed of 1, we want it to

* [25:13 - 25:15](https://www.youtube.com/watch?t=1513&v=R8O8Y6xP79w)

move at our speed, so we're going to times

* [25:15 - 25:18](https://www.youtube.com/watch?t=1515&v=R8O8Y6xP79w)

that by our speed variable that we stored.

* [25:18 - 25:21](https://www.youtube.com/watch?t=1518&v=R8O8Y6xP79w)

Also, this is called fixed update.

* [25:21 - 25:23](https://www.youtube.com/watch?t=1521&v=R8O8Y6xP79w)

So we don't want it to move at

* [25:23 - 25:25](https://www.youtube.com/watch?t=1523&v=R8O8Y6xP79w)

6 units per fixed update,

* [25:25 - 25:28](https://www.youtube.com/watch?t=1525&v=R8O8Y6xP79w)

it would move 6 units every 50th of a second

* [25:28 - 25:30](https://www.youtube.com/watch?t=1528&v=R8O8Y6xP79w)

and we wouldn't see our player ever again,

* [25:30 - 25:32](https://www.youtube.com/watch?t=1530&v=R8O8Y6xP79w)

so instead we're going to change it so that it's

* [25:32 - 25:34](https://www.youtube.com/watch?t=1532&v=R8O8Y6xP79w)

per seconds and the way we do that is by

* [25:34 - 25:36](https://www.youtube.com/watch?t=1534&v=R8O8Y6xP79w)

multiplying by Time.DeltaTime.

* [25:36 - 25:40](https://www.youtube.com/watch?t=1536&v=R8O8Y6xP79w)

DeltaTime is the time between each update call.

* [25:40 - 25:42](https://www.youtube.com/watch?t=1540&v=R8O8Y6xP79w)

So if you're moving it by that much

* [25:42 - 25:44](https://www.youtube.com/watch?t=1542&v=R8O8Y6xP79w)

per 50th of a second

* [25:44 - 25:47](https://www.youtube.com/watch?t=1544&v=R8O8Y6xP79w)

over the course of 50 50ths of a second

* [25:47 - 25:49](https://www.youtube.com/watch?t=1547&v=R8O8Y6xP79w)

it is going to move 6 units.

* [25:49 - 25:51](https://www.youtube.com/watch?t=1549&v=R8O8Y6xP79w)

So finally in this function the last thing we need to do is

* [25:51 - 25:53](https://www.youtube.com/watch?t=1551&v=R8O8Y6xP79w)

apply that movement to the player.

* [25:53 - 25:55](https://www.youtube.com/watch?t=1553&v=R8O8Y6xP79w)

So we're going to do that using a rigidbody function

* [25:55 - 25:57](https://www.youtube.com/watch?t=1555&v=R8O8Y6xP79w)

called MovePosition.

* [25:57 - 25:59](https://www.youtube.com/watch?t=1557&v=R8O8Y6xP79w)

So MovePosition moves a rigidbody

* [25:59 - 26:01](https://www.youtube.com/watch?t=1559&v=R8O8Y6xP79w)

to a position in world space.

* [26:01 - 26:03](https://www.youtube.com/watch?t=1561&v=R8O8Y6xP79w)

So we need to move it relative

* [26:03 - 26:06](https://www.youtube.com/watch?t=1563&v=R8O8Y6xP79w)

to the position that the character currently is.

* [26:06 - 26:08](https://www.youtube.com/watch?t=1566&v=R8O8Y6xP79w)

We need to add our movement

* [26:08 - 26:12](https://www.youtube.com/watch?t=1568&v=R8O8Y6xP79w)

to the player's position, the transform.position + movement.

* [26:12 - 26:14](https://www.youtube.com/watch?t=1572&v=R8O8Y6xP79w)

So it's going to be it's current positions plus

* [26:14 - 26:16](https://www.youtube.com/watch?t=1574&v=R8O8Y6xP79w)

this input that we've given him to move him

* [26:16 - 26:17](https://www.youtube.com/watch?t=1576&v=R8O8Y6xP79w)

slightly further along.

* [26:17 - 26:19](https://www.youtube.com/watch?t=1577&v=R8O8Y6xP79w)

The next thing that we're going to do is look at the

* [26:19 - 26:20](https://www.youtube.com/watch?t=1579&v=R8O8Y6xP79w)

turning of the character.

* [26:20 - 26:23](https://www.youtube.com/watch?t=1580&v=R8O8Y6xP79w)

Again we're going to make a new function.

* [26:23 - 26:25](https://www.youtube.com/watch?t=1583&v=R8O8Y6xP79w)

This time we're going to call it Turning.

* [26:25 - 26:29](https://www.youtube.com/watch?t=1585&v=R8O8Y6xP79w)

We don't require any parameters for this.

* [26:30 - 26:32](https://www.youtube.com/watch?t=1590&v=R8O8Y6xP79w)

Because the direction the character

* [26:32 - 26:34](https://www.youtube.com/watch?t=1592&v=R8O8Y6xP79w)

is facing is based on the mouse input

* [26:34 - 26:36](https://www.youtube.com/watch?t=1594&v=R8O8Y6xP79w)

rather than the input that we've already stored.

* [26:36 - 26:38](https://www.youtube.com/watch?t=1596&v=R8O8Y6xP79w)

The first thing that we're going to do is create

* [26:38 - 26:40](https://www.youtube.com/watch?t=1598&v=R8O8Y6xP79w)

a ray that we cast

* [26:40 - 26:42](https://www.youtube.com/watch?t=1600&v=R8O8Y6xP79w)

from the camera in to the scene.

* [26:42 - 26:44](https://www.youtube.com/watch?t=1602&v=R8O8Y6xP79w)

Let's have a little look at how that actually works first.

* [26:44 - 26:46](https://www.youtube.com/watch?t=1604&v=R8O8Y6xP79w)

If you have a look at this diagram we have

* [26:46 - 26:48](https://www.youtube.com/watch?t=1606&v=R8O8Y6xP79w)

a representation of the camera,

* [26:48 - 26:53](https://www.youtube.com/watch?t=1608&v=R8O8Y6xP79w)

the screen and the level plus the floor quad around the level.

* [26:53 - 26:55](https://www.youtube.com/watch?t=1613&v=R8O8Y6xP79w)

So that box that you're looking at there

* [26:55 - 26:57](https://www.youtube.com/watch?t=1615&v=R8O8Y6xP79w)

is effectively your level,

* [26:57 - 26:59](https://www.youtube.com/watch?t=1617&v=R8O8Y6xP79w)

the floor quad is around that

* [26:59 - 27:01](https://www.youtube.com/watch?t=1619&v=R8O8Y6xP79w)

and the camera, if you think of the camera as

* [27:01 - 27:03](https://www.youtube.com/watch?t=1621&v=R8O8Y6xP79w)

something that's looking from where you're

* [27:03 - 27:05](https://www.youtube.com/watch?t=1623&v=R8O8Y6xP79w)

looking at the game on the screen

* [27:05 - 27:07](https://www.youtube.com/watch?t=1625&v=R8O8Y6xP79w)

forward on to the game level

* [27:07 - 27:11](https://www.youtube.com/watch?t=1627&v=R8O8Y6xP79w)

you cast a ray, a single invisible line from that point

* [27:11 - 27:14](https://www.youtube.com/watch?t=1631&v=R8O8Y6xP79w)

to the floor quad to get a particular position back.

* [27:14 - 27:16](https://www.youtube.com/watch?t=1634&v=R8O8Y6xP79w)

And we want to use that because we want the

* [27:16 - 27:18](https://www.youtube.com/watch?t=1636&v=R8O8Y6xP79w)

character to turn and face the

* [27:18 - 27:20](https://www.youtube.com/watch?t=1638&v=R8O8Y6xP79w)

point of wherever the camera's looking.

* [27:20 - 27:22](https://www.youtube.com/watch?t=1640&v=R8O8Y6xP79w)

So when you move the mouse around in the game

* [27:22 - 27:24](https://www.youtube.com/watch?t=1642&v=R8O8Y6xP79w)

he's going to turn around and face that position

* [27:24 - 27:26](https://www.youtube.com/watch?t=1644&v=R8O8Y6xP79w)

so that you can turn around and also shoot

* [27:26 - 27:28](https://www.youtube.com/watch?t=1646&v=R8O8Y6xP79w)

in a particular direction.

* [27:28 - 27:30](https://www.youtube.com/watch?t=1648&v=R8O8Y6xP79w)

So we see this end bracket on line 40,

* [27:30 - 27:32](https://www.youtube.com/watch?t=1650&v=R8O8Y6xP79w)

make sure that's there.

* [27:32 - 27:34](https://www.youtube.com/watch?t=1652&v=R8O8Y6xP79w)

It's a real quick gotcha that everyone always does is they

* [27:34 - 27:37](https://www.youtube.com/watch?t=1654&v=R8O8Y6xP79w)

move their functions down outside of the class

* [27:37 - 27:39](https://www.youtube.com/watch?t=1657&v=R8O8Y6xP79w)

by accident, so if you have

* [27:39 - 27:41](https://www.youtube.com/watch?t=1659&v=R8O8Y6xP79w)

avoid Turning with your open and closed brackets

* [27:41 - 27:44](https://www.youtube.com/watch?t=1661&v=R8O8Y6xP79w)

and you don't have another bracket immediately after that

* [27:44 - 27:45](https://www.youtube.com/watch?t=1664&v=R8O8Y6xP79w)

you've missed one.

* [27:45 - 27:47](https://www.youtube.com/watch?t=1665&v=R8O8Y6xP79w)

And don't just add another one

* [27:47 - 27:48](https://www.youtube.com/watch?t=1667&v=R8O8Y6xP79w)

because then you're going to have one in the wrong spot

* [27:48 - 27:50](https://www.youtube.com/watch?t=1668&v=R8O8Y6xP79w)

and another one in the wrong spot.

* [27:50 - 27:52](https://www.youtube.com/watch?t=1670&v=R8O8Y6xP79w)

Instead just move that function back

* [27:52 - 27:54](https://www.youtube.com/watch?t=1672&v=R8O8Y6xP79w)

up so that it is inside the class.

* [27:54 - 27:56](https://www.youtube.com/watch?t=1674&v=R8O8Y6xP79w)

The first thing we're going to do in this function is

* [27:56 - 27:57](https://www.youtube.com/watch?t=1676&v=R8O8Y6xP79w)

we're going to create a ray.

* [27:58 - 28:00](https://www.youtube.com/watch?t=1678&v=R8O8Y6xP79w)

So we'll call that camRay,

* [28:00 - 28:02](https://www.youtube.com/watch?t=1680&v=R8O8Y6xP79w)

a ray coming from the camera.

* [28:02 - 28:04](https://www.youtube.com/watch?t=1682&v=R8O8Y6xP79w)

And we're going to use a function of

* [28:04 - 28:06](https://www.youtube.com/watch?t=1684&v=R8O8Y6xP79w)

the camera, the main camera called

* [28:06 - 28:08](https://www.youtube.com/watch?t=1686&v=R8O8Y6xP79w)

ScrenPointToRay.

* [28:08 - 28:10](https://www.youtube.com/watch?t=1688&v=R8O8Y6xP79w)

So what that's going to do is take a point on

* [28:10 - 28:12](https://www.youtube.com/watch?t=1690&v=R8O8Y6xP79w)

the screen and cast a ray

* [28:12 - 28:15](https://www.youtube.com/watch?t=1692&v=R8O8Y6xP79w)

from that point forwards in to the scene.

* [28:15 - 28:17](https://www.youtube.com/watch?t=1695&v=R8O8Y6xP79w)

So the point that we're going to give it

* [28:17 - 28:19](https://www.youtube.com/watch?t=1697&v=R8O8Y6xP79w)

is the mouse position.

* [28:20 - 28:22](https://www.youtube.com/watch?t=1700&v=R8O8Y6xP79w)

So it's always going to find the point

* [28:22 - 28:23](https://www.youtube.com/watch?t=1702&v=R8O8Y6xP79w)

underneath the mouse if you imagine.

* [28:23 - 28:25](https://www.youtube.com/watch?t=1703&v=R8O8Y6xP79w)

So if you're looking at the game,

* [28:25 - 28:27](https://www.youtube.com/watch?t=1705&v=R8O8Y6xP79w)

there's a mouse on your screen, the point underneath that

* [28:27 - 28:29](https://www.youtube.com/watch?t=1707&v=R8O8Y6xP79w)

mouse is the point it's going to find

* [28:29 - 28:31](https://www.youtube.com/watch?t=1709&v=R8O8Y6xP79w)

if that hits the floor quad.

* [28:31 - 28:33](https://www.youtube.com/watch?t=1711&v=R8O8Y6xP79w)

We need to get information back when we

* [28:33 - 28:35](https://www.youtube.com/watch?t=1713&v=R8O8Y6xP79w)

do this raycast and in order to get

* [28:35 - 28:37](https://www.youtube.com/watch?t=1715&v=R8O8Y6xP79w)

information back from this raycast

* [28:37 - 28:39](https://www.youtube.com/watch?t=1717&v=R8O8Y6xP79w)

we need a RaycastHit variable,

* [28:39 - 28:41](https://www.youtube.com/watch?t=1719&v=R8O8Y6xP79w)

so that's what we're creating here.

* [28:41 - 28:43](https://www.youtube.com/watch?t=1721&v=R8O8Y6xP79w)

The next stage is to actually

* [28:43 - 28:44](https://www.youtube.com/watch?t=1723&v=R8O8Y6xP79w)

cast the ray that we've created.

* [28:44 - 28:47](https://www.youtube.com/watch?t=1724&v=R8O8Y6xP79w)

So we created this imaginary invisible line

* [28:47 - 28:49](https://www.youtube.com/watch?t=1727&v=R8O8Y6xP79w)

and now we need to actually perform the action

* [28:49 - 28:51](https://www.youtube.com/watch?t=1729&v=R8O8Y6xP79w)

of casting the ray

* [28:51 - 28:53](https://www.youtube.com/watch?t=1731&v=R8O8Y6xP79w)

so that it can hit something.

* [28:53 - 28:55](https://www.youtube.com/watch?t=1733&v=R8O8Y6xP79w)

A raycast function will return

* [28:55 - 28:57](https://www.youtube.com/watch?t=1735&v=R8O8Y6xP79w)

true if it has hit something

* [28:57 - 29:00](https://www.youtube.com/watch?t=1737&v=R8O8Y6xP79w)

and it will return false if it hasn't

* [29:00 - 29:03](https://www.youtube.com/watch?t=1740&v=R8O8Y6xP79w)

So we're going to put that inside and If statement.

* [29:03 - 29:05](https://www.youtube.com/watch?t=1743&v=R8O8Y6xP79w)

And if it has hit something

* [29:05 - 29:07](https://www.youtube.com/watch?t=1745&v=R8O8Y6xP79w)

then the code within the If statement

* [29:07 - 29:08](https://www.youtube.com/watch?t=1747&v=R8O8Y6xP79w)

will be carried out.

* [29:08 - 29:10](https://www.youtube.com/watch?t=1748&v=R8O8Y6xP79w)

If it hasn't hit anything then the code within

* [29:10 - 29:12](https://www.youtube.com/watch?t=1750&v=R8O8Y6xP79w)

the If statement won't be carried out

* [29:12 - 29:13](https://www.youtube.com/watch?t=1752&v=R8O8Y6xP79w)

so we'll just skip out of this function.

* [29:13 - 29:16](https://www.youtube.com/watch?t=1753&v=R8O8Y6xP79w)

That's what that little If at the start there is for.

* [29:16 - 29:18](https://www.youtube.com/watch?t=1756&v=R8O8Y6xP79w)

So we need to give this a number of parameters.

* [29:18 - 29:20](https://www.youtube.com/watch?t=1758&v=R8O8Y6xP79w)

Let's start off with the ray itself, that's the

* [29:20 - 29:23](https://www.youtube.com/watch?t=1760&v=R8O8Y6xP79w)

positions and directions of the cast that we're going to have.

* [29:23 - 29:25](https://www.youtube.com/watch?t=1763&v=R8O8Y6xP79w)

We need to use an Out variable

* [29:25 - 29:27](https://www.youtube.com/watch?t=1765&v=R8O8Y6xP79w)

for the floor hit, so Out means

* [29:27 - 29:29](https://www.youtube.com/watch?t=1767&v=R8O8Y6xP79w)

that we're going to get information out of

* [29:29 - 29:31](https://www.youtube.com/watch?t=1769&v=R8O8Y6xP79w)

this function and we're going to store it

* [29:31 - 29:33](https://www.youtube.com/watch?t=1771&v=R8O8Y6xP79w)

in that floorHit variable.

* [29:33 - 29:35](https://www.youtube.com/watch?t=1773&v=R8O8Y6xP79w)

Next we need to give it a length,

* [29:35 - 29:37](https://www.youtube.com/watch?t=1775&v=R8O8Y6xP79w)

so how far are we going to do this raycast for?.

* [29:37 - 29:40](https://www.youtube.com/watch?t=1777&v=R8O8Y6xP79w)

And that's the variable camRayLength that we store earlier.

* [29:40 - 29:43](https://www.youtube.com/watch?t=1780&v=R8O8Y6xP79w)

And finally we want to make sure that this raycast is

* [29:43 - 29:46](https://www.youtube.com/watch?t=1783&v=R8O8Y6xP79w)

only trying to hit things on the floor layer.

* [29:46 - 29:48](https://www.youtube.com/watch?t=1786&v=R8O8Y6xP79w)

That's that floor mask that we created earlier.

* [29:48 - 29:51](https://www.youtube.com/watch?t=1788&v=R8O8Y6xP79w)

Remember that since this is an If statement

* [29:51 - 29:53](https://www.youtube.com/watch?t=1791&v=R8O8Y6xP79w)

and a function there should be

* [29:53 - 29:56](https://www.youtube.com/watch?t=1793&v=R8O8Y6xP79w)

two closed braces at the end there.

* [29:58 - 30:04](https://www.youtube.com/watch?t=1798&v=R8O8Y6xP79w)

So if you see you've got if (Physics.Raycast (

* [30:04 - 30:07](https://www.youtube.com/watch?t=1804&v=R8O8Y6xP79w)

and then at the end we need to close both of those brackets again.

* [30:07 - 30:12](https://www.youtube.com/watch?t=1807&v=R8O8Y6xP79w)

Okay so we've got the open curly braces afterwards

* [30:12 - 30:14](https://www.youtube.com/watch?t=1812&v=R8O8Y6xP79w)

and this will be the code that's carried out

* [30:14 - 30:16](https://www.youtube.com/watch?t=1814&v=R8O8Y6xP79w)

if we've hit something, so we need to

* [30:16 - 30:18](https://www.youtube.com/watch?t=1816&v=R8O8Y6xP79w)

create a vector3 from the

* [30:18 - 30:21](https://www.youtube.com/watch?t=1818&v=R8O8Y6xP79w)

player to where the mouse has hit.

* [30:21 - 30:23](https://www.youtube.com/watch?t=1821&v=R8O8Y6xP79w)

And that's the floorHit.Point,

* [30:23 - 30:26](https://www.youtube.com/watch?t=1823&v=R8O8Y6xP79w)

so that's the point that it's hit the floor

* [30:26 - 30:30](https://www.youtube.com/watch?t=1826&v=R8O8Y6xP79w)

minus transform.position, that's the position of the player.

* [30:30 - 30:33](https://www.youtube.com/watch?t=1830&v=R8O8Y6xP79w)

We're going to apply this

* [30:33 - 30:35](https://www.youtube.com/watch?t=1833&v=R8O8Y6xP79w)

to the character to make him turn

* [30:35 - 30:39](https://www.youtube.com/watch?t=1835&v=R8O8Y6xP79w)

but we don't want him to sort of start leaning back

* [30:39 - 30:41](https://www.youtube.com/watch?t=1839&v=R8O8Y6xP79w)

so we need to make sure that the Y component

* [30:41 - 30:43](https://www.youtube.com/watch?t=1841&v=R8O8Y6xP79w)

of this vector is definitely 0.

* [30:43 - 30:45](https://www.youtube.com/watch?t=1843&v=R8O8Y6xP79w)

Now we can't set a player's rotation based on

* [30:45 - 30:47](https://www.youtube.com/watch?t=1845&v=R8O8Y6xP79w)

a vector so we need to change that

* [30:47 - 30:49](https://www.youtube.com/watch?t=1847&v=R8O8Y6xP79w)

from a vector in to the

* [30:49 - 30:51](https://www.youtube.com/watch?t=1849&v=R8O8Y6xP79w)

horrible word, quaternion.

* [30:52 - 30:54](https://www.youtube.com/watch?t=1852&v=R8O8Y6xP79w)

So quaternion basically speaking is

* [30:54 - 30:55](https://www.youtube.com/watch?t=1854&v=R8O8Y6xP79w)

a way of storing a rotation.

* [30:55 - 30:57](https://www.youtube.com/watch?t=1855&v=R8O8Y6xP79w)

We have a vector3 but we can't

* [30:57 - 30:59](https://www.youtube.com/watch?t=1857&v=R8O8Y6xP79w)

use that to store a rotation so we use a

* [30:59 - 31:02](https://www.youtube.com/watch?t=1859&v=R8O8Y6xP79w)

quaternion and we're going to create one called newRotation

* [31:02 - 31:04](https://www.youtube.com/watch?t=1862&v=R8O8Y6xP79w)

and quaternions are also a class

* [31:04 - 31:06](https://www.youtube.com/watch?t=1864&v=R8O8Y6xP79w)

that has a number of functions of

* [31:06 - 31:08](https://www.youtube.com/watch?t=1866&v=R8O8Y6xP79w)

which we're going to use one called LookRotation

* [31:08 - 31:11](https://www.youtube.com/watch?t=1868&v=R8O8Y6xP79w)

So what lookRotation does, the default for

* [31:11 - 31:13](https://www.youtube.com/watch?t=1871&v=R8O8Y6xP79w)

characters and cameras and things like that

* [31:13 - 31:16](https://www.youtube.com/watch?t=1873&v=R8O8Y6xP79w)

in Unity and in most 3D modelling

* [31:16 - 31:19](https://www.youtube.com/watch?t=1876&v=R8O8Y6xP79w)

is that the Z axis is their forward axis.

* [31:19 - 31:23](https://www.youtube.com/watch?t=1879&v=R8O8Y6xP79w)

So we want to made the playerToMouse vector

* [31:23 - 31:25](https://www.youtube.com/watch?t=1883&v=R8O8Y6xP79w)

the forward vector of the player.

* [31:25 - 31:27](https://www.youtube.com/watch?t=1885&v=R8O8Y6xP79w)

So that's all that this function is doing

* [31:27 - 31:29](https://www.youtube.com/watch?t=1887&v=R8O8Y6xP79w)

when we give it the playerToMouse.

* [31:29 - 31:31](https://www.youtube.com/watch?t=1889&v=R8O8Y6xP79w)

When we actually have to apply it so we're going to

* [31:31 - 31:33](https://www.youtube.com/watch?t=1891&v=R8O8Y6xP79w)

address the player rigidbody.

* [31:33 - 31:35](https://www.youtube.com/watch?t=1893&v=R8O8Y6xP79w)

I'm going to use the moveRotation function

* [31:35 - 31:36](https://www.youtube.com/watch?t=1895&v=R8O8Y6xP79w)

and since we don't want to give it an offset

* [31:36 - 31:39](https://www.youtube.com/watch?t=1896&v=R8O8Y6xP79w)

we're trying to give it a completely new rotation.

* [31:40 - 31:42](https://www.youtube.com/watch?t=1900&v=R8O8Y6xP79w)

We're just going to assign it like that, we don't need to do

* [31:42 - 31:45](https://www.youtube.com/watch?t=1902&v=R8O8Y6xP79w)

transform.rotation + newRotation,

* [31:45 - 31:46](https://www.youtube.com/watch?t=1905&v=R8O8Y6xP79w)

it's just this rotation.

* [31:46 - 31:50](https://www.youtube.com/watch?t=1906&v=R8O8Y6xP79w)

So that's our turning, the next and final function of this,

* [31:50 - 31:52](https://www.youtube.com/watch?t=1910&v=R8O8Y6xP79w)

we're going to look at the animation.

* [31:53 - 31:55](https://www.youtube.com/watch?t=1913&v=R8O8Y6xP79w)

After the turning we're going to make another function

* [31:55 - 31:57](https://www.youtube.com/watch?t=1915&v=R8O8Y6xP79w)

called Animating.

* [31:57 - 32:01](https://www.youtube.com/watch?t=1917&v=R8O8Y6xP79w)

Now we do need to give this the

* [32:01 - 32:03](https://www.youtube.com/watch?t=1921&v=R8O8Y6xP79w)

H and V parameters because

* [32:03 - 32:05](https://www.youtube.com/watch?t=1923&v=R8O8Y6xP79w)

whether or not the player is walking

* [32:05 - 32:07](https://www.youtube.com/watch?t=1925&v=R8O8Y6xP79w)

or idle is dependent on the input.

* [32:08 - 32:10](https://www.youtube.com/watch?t=1928&v=R8O8Y6xP79w)

So what we're going to do is we're going to create

* [32:10 - 32:14](https://www.youtube.com/watch?t=1930&v=R8O8Y6xP79w)

a boolean variable called Walking.

* [32:14 - 32:16](https://www.youtube.com/watch?t=1934&v=R8O8Y6xP79w)

And we need this to be true

* [32:17 - 32:19](https://www.youtube.com/watch?t=1937&v=R8O8Y6xP79w)

if either the H variable

* [32:19 - 32:21](https://www.youtube.com/watch?t=1939&v=R8O8Y6xP79w)

or the V variable has some value.

* [32:21 - 32:23](https://www.youtube.com/watch?t=1941&v=R8O8Y6xP79w)

If it's 0 then

* [32:23 - 32:25](https://www.youtube.com/watch?t=1943&v=R8O8Y6xP79w)

there's no input on that axis

* [32:25 - 32:26](https://www.youtube.com/watch?t=1945&v=R8O8Y6xP79w)

and we don't need to worry about it.

* [32:26 - 32:29](https://www.youtube.com/watch?t=1946&v=R8O8Y6xP79w)

But if either H or V has

* [32:29 - 32:32](https://www.youtube.com/watch?t=1949&v=R8O8Y6xP79w)

a value that's non-0 then

* [32:32 - 32:34](https://www.youtube.com/watch?t=1952&v=R8O8Y6xP79w)

it's true and the player is walking.

* [32:34 - 32:38](https://www.youtube.com/watch?t=1954&v=R8O8Y6xP79w)

So what that complicated bit of code there is doing

* [32:39 - 32:42](https://www.youtube.com/watch?t=1959&v=R8O8Y6xP79w)

is saying that first of all H

* [32:42 - 32:44](https://www.youtube.com/watch?t=1962&v=R8O8Y6xP79w)

is that not equal to 0?

* [32:45 - 32:47](https://www.youtube.com/watch?t=1965&v=R8O8Y6xP79w)

That will return either true of false

* [32:47 - 32:51](https://www.youtube.com/watch?t=1967&v=R8O8Y6xP79w)

depending on whether it's 0 or not 0.

* [32:51 - 32:53](https://www.youtube.com/watch?t=1971&v=R8O8Y6xP79w)

Or

* [32:54 - 32:57](https://www.youtube.com/watch?t=1974&v=R8O8Y6xP79w)

is V not equal to 0?

* [32:57 - 32:59](https://www.youtube.com/watch?t=1977&v=R8O8Y6xP79w)

What this is basically saying is 'hey, did we

* [32:59 - 33:01](https://www.youtube.com/watch?t=1979&v=R8O8Y6xP79w)

press the horizontal axis or did we

* [33:01 - 33:03](https://www.youtube.com/watch?t=1981&v=R8O8Y6xP79w)

press the vertical axis'?

* [33:03 - 33:05](https://www.youtube.com/watch?t=1983&v=R8O8Y6xP79w)

If we pressed either of those we're walking.

* [33:05 - 33:06](https://www.youtube.com/watch?t=1985&v=R8O8Y6xP79w)

If we didn't we're not.

* [33:06 - 33:08](https://www.youtube.com/watch?t=1986&v=R8O8Y6xP79w)

So the reason we're doing that is we want to

* [33:08 - 33:10](https://www.youtube.com/watch?t=1988&v=R8O8Y6xP79w)

parse this to our animator component

* [33:10 - 33:13](https://www.youtube.com/watch?t=1990&v=R8O8Y6xP79w)

so you'll remember we made a parameter called IsWalking.

* [33:13 - 33:15](https://www.youtube.com/watch?t=1993&v=R8O8Y6xP79w)

And the way that we set that is we say

* [33:15 - 33:18](https://www.youtube.com/watch?t=1995&v=R8O8Y6xP79w)

anim, so our reference to the animator component,

* [33:18 - 33:20](https://www.youtube.com/watch?t=1998&v=R8O8Y6xP79w)

Set.Bool, so we made a parameter which

* [33:20 - 33:23](https://www.youtube.com/watch?t=2000&v=R8O8Y6xP79w)

was a type bool, a boolean, true or false.

* [33:23 - 33:25](https://www.youtube.com/watch?t=2003&v=R8O8Y6xP79w)

And it was called IsWalking.

* [33:25 - 33:27](https://www.youtube.com/watch?t=2005&v=R8O8Y6xP79w)

So first to actually set this

* [33:27 - 33:30](https://www.youtube.com/watch?t=2007&v=R8O8Y6xP79w)

we tell it which one so the IsWalking parameter

* [33:30 - 33:33](https://www.youtube.com/watch?t=2010&v=R8O8Y6xP79w)

and then we give it a value, so we could here write true or false

* [33:33 - 33:35](https://www.youtube.com/watch?t=2013&v=R8O8Y6xP79w)

but we want to use Walking, the variable

* [33:35 - 33:36](https://www.youtube.com/watch?t=2015&v=R8O8Y6xP79w)

that we just made.

* [33:36 - 33:40](https://www.youtube.com/watch?t=2016&v=R8O8Y6xP79w)

So the very last thing that we need to do in this class

* [33:40 - 33:42](https://www.youtube.com/watch?t=2020&v=R8O8Y6xP79w)

is we need to put, so we need to put

* [33:42 - 33:44](https://www.youtube.com/watch?t=2022&v=R8O8Y6xP79w)

calls to those functions that we've made.

* [33:44 - 33:47](https://www.youtube.com/watch?t=2024&v=R8O8Y6xP79w)

Currently they're just functions sitting there by themselves.

* [33:47 - 33:49](https://www.youtube.com/watch?t=2027&v=R8O8Y6xP79w)

We need to make sure that those functions are

* [33:49 - 33:52](https://www.youtube.com/watch?t=2029&v=R8O8Y6xP79w)

actually being called an actually being used.

* [33:52 - 33:55](https://www.youtube.com/watch?t=2032&v=R8O8Y6xP79w)

These three functions aren't happening

* [33:55 - 33:57](https://www.youtube.com/watch?t=2035&v=R8O8Y6xP79w)

until we tell them to, we haven't actually

* [33:57 - 33:59](https://www.youtube.com/watch?t=2037&v=R8O8Y6xP79w)

called them anywhere in the script, they just

* [33:59 - 34:01](https://www.youtube.com/watch?t=2039&v=R8O8Y6xP79w)

exist and are waiting to happen.

* [34:01 - 34:03](https://www.youtube.com/watch?t=2041&v=R8O8Y6xP79w)

In fixed update that we created earlier

* [34:03 - 34:05](https://www.youtube.com/watch?t=2043&v=R8O8Y6xP79w)

we already got the input, we stored that.

* [34:06 - 34:08](https://www.youtube.com/watch?t=2046&v=R8O8Y6xP79w)

Now after we've got the input entirety

* [34:08 - 34:11](https://www.youtube.com/watch?t=2048&v=R8O8Y6xP79w)

we now need to call these functions that we've created.

* [34:12 - 34:14](https://www.youtube.com/watch?t=2052&v=R8O8Y6xP79w)

So we call them just by using their name.

* [34:15 - 34:18](https://www.youtube.com/watch?t=2055&v=R8O8Y6xP79w)

And then parsing in the values if they're required.

* [34:18 - 34:20](https://www.youtube.com/watch?t=2058&v=R8O8Y6xP79w)

So Move requires 2 floats,

* [34:20 - 34:22](https://www.youtube.com/watch?t=2060&v=R8O8Y6xP79w)

we've got our floats for input there

* [34:22 - 34:24](https://www.youtube.com/watch?t=2062&v=R8O8Y6xP79w)

and that's all that we need to do.

* [34:24 - 34:26](https://www.youtube.com/watch?t=2064&v=R8O8Y6xP79w)

So we need to say H and V

* [34:26 - 34:28](https://www.youtube.com/watch?t=2066&v=R8O8Y6xP79w)

semi-colon.

* [34:28 - 34:32](https://www.youtube.com/watch?t=2068&v=R8O8Y6xP79w)

Then we'll call Turning which doesn't take any parameters

* [34:32 - 34:33](https://www.youtube.com/watch?t=2072&v=R8O8Y6xP79w)

And finally we'll call

* [34:34 - 34:36](https://www.youtube.com/watch?t=2074&v=R8O8Y6xP79w)

Animati, which does.

* [34:39 - 34:40](https://www.youtube.com/watch?t=2079&v=R8O8Y6xP79w)

Like that.

* [34:40 - 34:42](https://www.youtube.com/watch?t=2080&v=R8O8Y6xP79w)

These are in fixed update, so they're being called

* [34:42 - 34:44](https://www.youtube.com/watch?t=2082&v=R8O8Y6xP79w)

every physics step.

* [34:44 - 34:46](https://www.youtube.com/watch?t=2084&v=R8O8Y6xP79w)

That is the end of that script so what I want you to do

* [34:46 - 34:48](https://www.youtube.com/watch?t=2086&v=R8O8Y6xP79w)

now is to go to File - Save

* [34:48 - 34:50](https://www.youtube.com/watch?t=2088&v=R8O8Y6xP79w)

and switch back to Unity.

* [34:50 - 34:53](https://www.youtube.com/watch?t=2090&v=R8O8Y6xP79w)

If anything is wrong you will see an error

* [34:53 - 34:55](https://www.youtube.com/watch?t=2093&v=R8O8Y6xP79w)

at the bottom of the screen in red.

* [34:56 - 34:59](https://www.youtube.com/watch?t=2096&v=R8O8Y6xP79w)

When you have no errors in your script,

* [35:00 - 35:02](https://www.youtube.com/watch?t=2100&v=R8O8Y6xP79w)

when you press play at the top of the editor

* [35:03 - 35:05](https://www.youtube.com/watch?t=2103&v=R8O8Y6xP79w)

you can move your character around with the arrow keys

* [35:05 - 35:08](https://www.youtube.com/watch?t=2105&v=R8O8Y6xP79w)

or W, A, S and D.

* [35:08 - 35:10](https://www.youtube.com/watch?t=2108&v=R8O8Y6xP79w)

The animation should function

* [35:10 - 35:12](https://www.youtube.com/watch?t=2110&v=R8O8Y6xP79w)

but the actual movement of the mouse should be a little bit

* [35:12 - 35:14](https://www.youtube.com/watch?t=2112&v=R8O8Y6xP79w)

tricky right now because we haven't moved the

* [35:14 - 35:16](https://www.youtube.com/watch?t=2114&v=R8O8Y6xP79w)

camera to the right point, so the camera isn't

* [35:16 - 35:20](https://www.youtube.com/watch?t=2116&v=R8O8Y6xP79w)

seeing the entirety of the floor quad yet

* [35:20 - 35:21](https://www.youtube.com/watch?t=2120&v=R8O8Y6xP79w)

and that can be a problem, but we're going to solve

* [35:21 - 35:22](https://www.youtube.com/watch?t=2121&v=R8O8Y6xP79w)

that in the next phase.

* [35:22 - 35:24](https://www.youtube.com/watch?t=2122&v=R8O8Y6xP79w)

So you should be able to move around.

* [35:24 - 35:27](https://www.youtube.com/watch?t=2124&v=R8O8Y6xP79w)

You'll note if I move the mouse up away from the floor quad

* [35:27 - 35:29](https://www.youtube.com/watch?t=2127&v=R8O8Y6xP79w)

that it doesn't rotate.

* [35:29 - 35:31](https://www.youtube.com/watch?t=2129&v=R8O8Y6xP79w)

As soon as I move it back over there the rayCast

* [35:31 - 35:33](https://www.youtube.com/watch?t=2131&v=R8O8Y6xP79w)

kicks back in and I can turn around

* [35:34 - 35:36](https://www.youtube.com/watch?t=2134&v=R8O8Y6xP79w)

and run around this this.

* [35:40 - 35:42](https://www.youtube.com/watch?t=2140&v=R8O8Y6xP79w)

Okay so we're at the end of phase 2.

* [35:42 - 35:46](https://www.youtube.com/watch?t=2142&v=R8O8Y6xP79w)

Phase 3 will be setting up the camera

* [35:46 - 35:48](https://www.youtube.com/watch?t=2146&v=R8O8Y6xP79w)

and we're going to have a quick look at the script that

* [35:48 - 35:50](https://www.youtube.com/watch?t=2148&v=R8O8Y6xP79w)

will make that camera work.

# Phase 3

* Okay, so as we said before, some of the
* [00:02 - 00:06](https://www.youtube.com/watch?t=2&v=xrmNFmS889I)

scripts in this project are pre-written.

* [00:06 - 00:08](https://www.youtube.com/watch?t=6&v=xrmNFmS889I)

So the main camera

* [00:08 - 00:10](https://www.youtube.com/watch?t=8&v=xrmNFmS889I)

is the camera that we're viewing our

* [00:10 - 00:12](https://www.youtube.com/watch?t=10&v=xrmNFmS889I)

game at, if I zoom our right now you can see

* [00:12 - 00:15](https://www.youtube.com/watch?t=12&v=xrmNFmS889I)

that the main camera is sitting behind the character.

* [00:15 - 00:17](https://www.youtube.com/watch?t=15&v=xrmNFmS889I)

And what we want to do is to set that up slightly

* [00:17 - 00:19](https://www.youtube.com/watch?t=17&v=xrmNFmS889I)

differently, currently by default when you

* [00:19 - 00:21](https://www.youtube.com/watch?t=19&v=xrmNFmS889I)

make a new camera in Unity you're making

* [00:21 - 00:23](https://www.youtube.com/watch?t=21&v=xrmNFmS889I)

a perspective 3D camera.

* [00:23 - 00:25](https://www.youtube.com/watch?t=23&v=xrmNFmS889I)

We want to make an isometric view

* [00:25 - 00:27](https://www.youtube.com/watch?t=25&v=xrmNFmS889I)

and because of that we're going to use

* [00:27 - 00:29](https://www.youtube.com/watch?t=27&v=xrmNFmS889I)

orthographic cameras.

* [00:29 - 00:31](https://www.youtube.com/watch?t=29&v=xrmNFmS889I)

So the first thing we're going to do is setup

* [00:31 - 00:33](https://www.youtube.com/watch?t=31&v=xrmNFmS889I)

where the camera is positioned.

* [00:33 - 00:35](https://www.youtube.com/watch?t=33&v=xrmNFmS889I)

We're going to select our main camera in the hierarchy

* [00:35 - 00:37](https://www.youtube.com/watch?t=35&v=xrmNFmS889I)

and in the transform

* [00:37 - 00:39](https://www.youtube.com/watch?t=37&v=xrmNFmS889I)

component we're going to set

* [00:39 - 00:45](https://www.youtube.com/watch?t=39&v=xrmNFmS889I)

the position to (1, 15, -22).

* [00:45 - 00:47](https://www.youtube.com/watch?t=45&v=xrmNFmS889I)

We're going to set the rotation to

* [00:47 - 00:51](https://www.youtube.com/watch?t=47&v=xrmNFmS889I)

(30,0,0)

* [00:52 - 00:54](https://www.youtube.com/watch?t=52&v=xrmNFmS889I)

Then in the camera component we're going to set the

* [00:54 - 00:56](https://www.youtube.com/watch?t=54&v=xrmNFmS889I)

projection mode from perspective

* [00:56 - 00:59](https://www.youtube.com/watch?t=56&v=xrmNFmS889I)

using the drop down to orthographic.

* [01:00 - 01:05](https://www.youtube.com/watch?t=60&v=xrmNFmS889I)

And finally the size value that then appears to 4.5.

* [01:05 - 01:07](https://www.youtube.com/watch?t=65&v=xrmNFmS889I)

And when you look at your scene view, your game view

* [01:07 - 01:09](https://www.youtube.com/watch?t=67&v=xrmNFmS889I)

you should see that you have

* [01:09 - 01:11](https://www.youtube.com/watch?t=69&v=xrmNFmS889I)

an orthographic view.

* [01:13 - 01:16](https://www.youtube.com/watch?t=73&v=xrmNFmS889I)

Then a couple more camera settings.

* [01:16 - 01:18](https://www.youtube.com/watch?t=76&v=xrmNFmS889I)

We're going to set our background

* [01:18 - 01:20](https://www.youtube.com/watch?t=78&v=xrmNFmS889I)

to black, so when you move over

* [01:20 - 01:22](https://www.youtube.com/watch?t=80&v=xrmNFmS889I)

to the front of the level you will see

* [01:22 - 01:24](https://www.youtube.com/watch?t=82&v=xrmNFmS889I)

the background colour of the camera.

* [01:24 - 01:26](https://www.youtube.com/watch?t=84&v=xrmNFmS889I)

We don't want it to be blue so in our

* [01:26 - 01:28](https://www.youtube.com/watch?t=86&v=xrmNFmS889I)

camera component we're going to click on the colour

* [01:28 - 01:30](https://www.youtube.com/watch?t=88&v=xrmNFmS889I)

block next to the world Background.

* [01:30 - 01:35](https://www.youtube.com/watch?t=90&v=xrmNFmS889I)

That's going to open up a colour picker, which looks like this.

* [01:36 - 01:38](https://www.youtube.com/watch?t=96&v=xrmNFmS889I)

We're going to set this to black, so drag it all the way down

* [01:38 - 01:40](https://www.youtube.com/watch?t=98&v=xrmNFmS889I)

to the bottom of the colours.

* [01:40 - 01:42](https://www.youtube.com/watch?t=100&v=xrmNFmS889I)

Close that panel.

* [01:43 - 01:45](https://www.youtube.com/watch?t=103&v=xrmNFmS889I)

Then we're going to save our scene

* [01:45 - 01:47](https://www.youtube.com/watch?t=105&v=xrmNFmS889I)

just to make sure it's up to date.

* [01:47 - 01:50](https://www.youtube.com/watch?t=107&v=xrmNFmS889I)

And in the Scripts folder

* [01:50 - 01:53](https://www.youtube.com/watch?t=110&v=xrmNFmS889I)

we're going to select Camera.

* [01:55 - 01:57](https://www.youtube.com/watch?t=115&v=xrmNFmS889I)

So this time we are going to

* [01:57 - 01:58](https://www.youtube.com/watch?t=117&v=xrmNFmS889I)

create one more script.

* [01:58 - 02:00](https://www.youtube.com/watch?t=118&v=xrmNFmS889I)

This script is a lot shorter than our player

* [02:00 - 02:02](https://www.youtube.com/watch?t=120&v=xrmNFmS889I)

movement and is quite simple.

* [02:02 - 02:05](https://www.youtube.com/watch?t=122&v=xrmNFmS889I)

So whenever you select a folder in your assets,

* [02:05 - 02:07](https://www.youtube.com/watch?t=125&v=xrmNFmS889I)

so for example we are selecting,

* [02:07 - 02:09](https://www.youtube.com/watch?t=127&v=xrmNFmS889I)

Camera in the Scripts folder right now,

* [02:10 - 02:12](https://www.youtube.com/watch?t=130&v=xrmNFmS889I)

we can go to the Create button and choose

* [02:12 - 02:14](https://www.youtube.com/watch?t=132&v=xrmNFmS889I)

C# Script.

* [02:14 - 02:16](https://www.youtube.com/watch?t=134&v=xrmNFmS889I)

And it's going to create something called 'New Behaviour.

* [02:16 - 02:18](https://www.youtube.com/watch?t=136&v=xrmNFmS889I)

When you create a script, especially in C#

* [02:18 - 02:22](https://www.youtube.com/watch?t=138&v=xrmNFmS889I)

it's very important that you name it in accurately.

* [02:23 - 02:25](https://www.youtube.com/watch?t=143&v=xrmNFmS889I)

We're going to call this CameraFollow so don't

* [02:25 - 02:27](https://www.youtube.com/watch?t=145&v=xrmNFmS889I)

have any spaces

* [02:27 - 02:29](https://www.youtube.com/watch?t=147&v=xrmNFmS889I)

on your file names for scripts and

* [02:29 - 02:31](https://www.youtube.com/watch?t=149&v=xrmNFmS889I)

try to name them in this

* [02:31 - 02:36](https://www.youtube.com/watch?t=151&v=xrmNFmS889I)

capitalised style. Capitalised style, capital F for Camera Follow.

* [02:36 - 02:38](https://www.youtube.com/watch?t=156&v=xrmNFmS889I)

Quick note on creating

* [02:38 - 02:40](https://www.youtube.com/watch?t=158&v=xrmNFmS889I)

scripts like this if you

* [02:40 - 02:42](https://www.youtube.com/watch?t=160&v=xrmNFmS889I)

created it and then accidentally clicked off so it would

* [02:42 - 02:44](https://www.youtube.com/watch?t=162&v=xrmNFmS889I)

briefly new behaviour.

* [02:44 - 02:46](https://www.youtube.com/watch?t=164&v=xrmNFmS889I)

Then the script, the class

* [02:46 - 02:48](https://www.youtube.com/watch?t=166&v=xrmNFmS889I)

that it makes will be called

* [02:48 - 02:50](https://www.youtube.com/watch?t=168&v=xrmNFmS889I)

new behaviour, so you'll need to

* [02:50 - 02:51](https://www.youtube.com/watch?t=170&v=xrmNFmS889I)

rename that when you open it.

* [02:51 - 02:53](https://www.youtube.com/watch?t=171&v=xrmNFmS889I)

So if I look at this one that I've correctly

* [02:53 - 02:55](https://www.youtube.com/watch?t=173&v=xrmNFmS889I)

named now, CameraFollow you can see it's

* [02:55 - 02:57](https://www.youtube.com/watch?t=175&v=xrmNFmS889I)

written the script for me, public class

* [02:57 - 02:59](https://www.youtube.com/watch?t=177&v=xrmNFmS889I)

CameraFollow, and what you'll see is

* [02:59 - 03:01](https://www.youtube.com/watch?t=179&v=xrmNFmS889I)

when you open it up in Unity and switch back

* [03:01 - 03:04](https://www.youtube.com/watch?t=181&v=xrmNFmS889I)

Unity will say 'class name does not match file name'.

* [03:04 - 03:06](https://www.youtube.com/watch?t=184&v=xrmNFmS889I)

So you need to make sure that everything in that class

* [03:06 - 03:08](https://www.youtube.com/watch?t=186&v=xrmNFmS889I)

is named the same as the actual file,

* [03:08 - 03:10](https://www.youtube.com/watch?t=188&v=xrmNFmS889I)

your CameraFollow script.

* [03:10 - 03:12](https://www.youtube.com/watch?t=190&v=xrmNFmS889I)

So once you've named that click

* [03:12 - 03:15](https://www.youtube.com/watch?t=192&v=xrmNFmS889I)

Open to open it up in Mono Develop.

* [03:16 - 03:19](https://www.youtube.com/watch?t=196&v=xrmNFmS889I)

And you should see something like this.

* [03:20 - 03:22](https://www.youtube.com/watch?t=200&v=xrmNFmS889I)

What we're going to do is

* [03:22 - 03:25](https://www.youtube.com/watch?t=202&v=xrmNFmS889I)

you get Start and Update

* [03:25 - 03:27](https://www.youtube.com/watch?t=205&v=xrmNFmS889I)

in your script, whenever you make a new script.

* [03:27 - 03:29](https://www.youtube.com/watch?t=207&v=xrmNFmS889I)

But we don't want those there

* [03:29 - 03:31](https://www.youtube.com/watch?t=209&v=xrmNFmS889I)

so we're going to select over that code,

* [03:31 - 03:33](https://www.youtube.com/watch?t=211&v=xrmNFmS889I)

making sure not to select

* [03:33 - 03:36](https://www.youtube.com/watch?t=213&v=xrmNFmS889I)

the final curly brackets.

* [03:36 - 03:38](https://www.youtube.com/watch?t=216&v=xrmNFmS889I)

We're going to hit backspace just to remove it

* [03:38 - 03:41](https://www.youtube.com/watch?t=218&v=xrmNFmS889I)

So we've got public class CameraFollow

* [03:41 - 03:43](https://www.youtube.com/watch?t=221&v=xrmNFmS889I)

and the open and closed curly braces.

* [03:43 - 03:45](https://www.youtube.com/watch?t=223&v=xrmNFmS889I)
* [03:45 - 03:47](https://www.youtube.com/watch?t=225&v=xrmNFmS889I)

Okay so as usual we're going to start

* [03:47 - 03:49](https://www.youtube.com/watch?t=227&v=xrmNFmS889I)

with the public variables at the top,

* [03:49 - 03:52](https://www.youtube.com/watch?t=229&v=xrmNFmS889I)

so those are the ones that can be accessed through the inspector,

* [03:52 - 03:54](https://www.youtube.com/watch?t=232&v=xrmNFmS889I)

or through other scripts.

* [03:54 - 03:56](https://www.youtube.com/watch?t=234&v=xrmNFmS889I)

To start off, we need to have

* [03:56 - 03:58](https://www.youtube.com/watch?t=236&v=xrmNFmS889I)

a target for this camera to follow

* [03:58 - 04:00](https://www.youtube.com/watch?t=238&v=xrmNFmS889I)

so we're going to make a public transform

* [04:00 - 04:01](https://www.youtube.com/watch?t=240&v=xrmNFmS889I)

called target.

* [04:02 - 04:04](https://www.youtube.com/watch?t=242&v=xrmNFmS889I)

Next we're going to make a public float

* [04:04 - 04:06](https://www.youtube.com/watch?t=244&v=xrmNFmS889I)

called smoothing.

* [04:07 - 04:10](https://www.youtube.com/watch?t=247&v=xrmNFmS889I)

and we're gong to give that a default value of 5.

* [04:10 - 04:12](https://www.youtube.com/watch?t=250&v=xrmNFmS889I)

So basically our camera's going to follow

* [04:12 - 04:14](https://www.youtube.com/watch?t=252&v=xrmNFmS889I)

the player around, but we don't want

* [04:14 - 04:16](https://www.youtube.com/watch?t=254&v=xrmNFmS889I)

it to be super sharp.

* [04:16 - 04:18](https://www.youtube.com/watch?t=256&v=xrmNFmS889I)

We're going to give it a little bit of lag, a little bit

* [04:18 - 04:20](https://www.youtube.com/watch?t=258&v=xrmNFmS889I)

just to make it smoother for the player to see.

* [04:20 - 04:22](https://www.youtube.com/watch?t=260&v=xrmNFmS889I)

So that value there is going to be

* [04:22 - 04:23](https://www.youtube.com/watch?t=262&v=xrmNFmS889I)

how smooth it is.

* [04:24 - 04:26](https://www.youtube.com/watch?t=264&v=xrmNFmS889I)

Lastly we're going to make a private variable

* [04:27 - 04:29](https://www.youtube.com/watch?t=267&v=xrmNFmS889I)

called offset.

* [04:30 - 04:32](https://www.youtube.com/watch?t=270&v=xrmNFmS889I)

We're going to store the offset of

* [04:32 - 04:34](https://www.youtube.com/watch?t=272&v=xrmNFmS889I)

the camera from the player, the distance between

* [04:34 - 04:36](https://www.youtube.com/watch?t=274&v=xrmNFmS889I)

them at the start of the script

* [04:36 - 04:38](https://www.youtube.com/watch?t=276&v=xrmNFmS889I)

and what we need to do is store that so

* [04:38 - 04:40](https://www.youtube.com/watch?t=278&v=xrmNFmS889I)

in each update we can make sure that we can

* [04:40 - 04:42](https://www.youtube.com/watch?t=280&v=xrmNFmS889I)

have the same offset.

* [04:42 - 04:44](https://www.youtube.com/watch?t=282&v=xrmNFmS889I)

So let's store that offset now in star.

* [04:45 - 04:48](https://www.youtube.com/watch?t=285&v=xrmNFmS889I)

Offset is the vector from

* [04:48 - 04:50](https://www.youtube.com/watch?t=288&v=xrmNFmS889I)

the camera to the player,

* [04:50 - 04:53](https://www.youtube.com/watch?t=290&v=xrmNFmS889I)

so that's transform.position - target.position.

* [04:53 - 04:55](https://www.youtube.com/watch?t=293&v=xrmNFmS889I)

We're going to apply the script once

* [04:55 - 04:57](https://www.youtube.com/watch?t=295&v=xrmNFmS889I)

we finish writing it to the camera

* [04:57 - 04:59](https://www.youtube.com/watch?t=297&v=xrmNFmS889I)

so we need to make sure that the

* [04:59 - 05:01](https://www.youtube.com/watch?t=299&v=xrmNFmS889I)

transform position, the position of the camera

* [05:01 - 05:04](https://www.youtube.com/watch?t=301&v=xrmNFmS889I)

is subtracted from the target position,

* [05:04 - 05:05](https://www.youtube.com/watch?t=304&v=xrmNFmS889I)

the position of the player.

* [05:05 - 05:06](https://www.youtube.com/watch?t=305&v=xrmNFmS889I)

So we're going to drag and drop.

* [05:06 - 05:08](https://www.youtube.com/watch?t=306&v=xrmNFmS889I)

Because target's a public variable we're going to

* [05:08 - 05:10](https://www.youtube.com/watch?t=308&v=xrmNFmS889I)

drag and drop the player game object on to

* [05:10 - 05:12](https://www.youtube.com/watch?t=310&v=xrmNFmS889I)

this transform target and you'll see that in a minute.

* [05:12 - 05:14](https://www.youtube.com/watch?t=312&v=xrmNFmS889I)

That's the end of our start function.

* [05:14 - 05:16](https://www.youtube.com/watch?t=314&v=xrmNFmS889I)

We just needed to create that offset

* [05:16 - 05:18](https://www.youtube.com/watch?t=316&v=xrmNFmS889I)

Now in fixed update,

* [05:18 - 05:20](https://www.youtube.com/watch?t=318&v=xrmNFmS889I)

so remember this is following

* [05:20 - 05:22](https://www.youtube.com/watch?t=320&v=xrmNFmS889I)

every physics step, and we're going to use fixed update

* [05:22 - 05:25](https://www.youtube.com/watch?t=322&v=xrmNFmS889I)

to move the camera because we're following

* [05:25 - 05:26](https://www.youtube.com/watch?t=325&v=xrmNFmS889I)

a physics object.

* [05:26 - 05:28](https://www.youtube.com/watch?t=326&v=xrmNFmS889I)

If we used update then it would

* [05:28 - 05:30](https://www.youtube.com/watch?t=328&v=xrmNFmS889I)

be moving in different time to the player

* [05:30 - 05:32](https://www.youtube.com/watch?t=330&v=xrmNFmS889I)

because the player is moving in fixed update.

* [05:32 - 05:35](https://www.youtube.com/watch?t=332&v=xrmNFmS889I)

So we're going to use fixed update to move the camera

* [05:35 - 05:37](https://www.youtube.com/watch?t=335&v=xrmNFmS889I)

and we need a target position

* [05:37 - 05:39](https://www.youtube.com/watch?t=337&v=xrmNFmS889I)

for this camera to try and reach.

* [05:39 - 05:41](https://www.youtube.com/watch?t=339&v=xrmNFmS889I)

TargetPosition is going to be the

* [05:41 - 05:43](https://www.youtube.com/watch?t=341&v=xrmNFmS889I)

position of the target + this offset.

* [05:43 - 05:45](https://www.youtube.com/watch?t=343&v=xrmNFmS889I)

So we're trying to find a place for this camera

* [05:45 - 05:47](https://www.youtube.com/watch?t=345&v=xrmNFmS889I)

to be up above the level

* [05:47 - 05:49](https://www.youtube.com/watch?t=347&v=xrmNFmS889I)

and that's the position of the player plus

* [05:49 - 05:51](https://www.youtube.com/watch?t=349&v=xrmNFmS889I)

this offset that we've stored.

* [05:51 - 05:53](https://www.youtube.com/watch?t=351&v=xrmNFmS889I)

And now we need to actually move the camera

* [05:53 - 05:56](https://www.youtube.com/watch?t=353&v=xrmNFmS889I)

and we're going to do that using a lerp.

* [05:56 - 05:59](https://www.youtube.com/watch?t=356&v=xrmNFmS889I)

A lerp just smoothly moves

* [05:59 - 06:01](https://www.youtube.com/watch?t=359&v=xrmNFmS889I)

between two positions,

* [06:01 - 06:03](https://www.youtube.com/watch?t=361&v=xrmNFmS889I)

so you get that through vector3.lerp.

* [06:03 - 06:05](https://www.youtube.com/watch?t=363&v=xrmNFmS889I)

The position that we want to move it to

* [06:05 - 06:07](https://www.youtube.com/watch?t=365&v=xrmNFmS889I)

is between it's current position

* [06:07 - 06:09](https://www.youtube.com/watch?t=367&v=xrmNFmS889I)

so transform.position,

* [06:10 - 06:12](https://www.youtube.com/watch?t=370&v=xrmNFmS889I)

and this target position that we've just made.

* [06:13 - 06:15](https://www.youtube.com/watch?t=373&v=xrmNFmS889I)

So what that's going is it's saying

* [06:15 - 06:17](https://www.youtube.com/watch?t=375&v=xrmNFmS889I)

I've got my current position and the position

* [06:17 - 06:19](https://www.youtube.com/watch?t=377&v=xrmNFmS889I)

I want to be, I'm going to try and move

* [06:19 - 06:20](https://www.youtube.com/watch?t=379&v=xrmNFmS889I)

a little bit towards that.

* [06:20 - 06:22](https://www.youtube.com/watch?t=380&v=xrmNFmS889I)

That's what this function is doing.

* [06:23 - 06:25](https://www.youtube.com/watch?t=383&v=xrmNFmS889I)

We've got the two vectors that we need to

* [06:25 - 06:27](https://www.youtube.com/watch?t=385&v=xrmNFmS889I)

move between, now we need to tell it

* [06:27 - 06:29](https://www.youtube.com/watch?t=387&v=xrmNFmS889I)

how fast we're going to do that,

* [06:29 - 06:31](https://www.youtube.com/watch?t=389&v=xrmNFmS889I)

and we're doing that using our smoothing variable

* [06:31 - 06:33](https://www.youtube.com/watch?t=391&v=xrmNFmS889I)

that we stored earlier.

* [06:33 - 06:35](https://www.youtube.com/watch?t=393&v=xrmNFmS889I)

And naturally since we don't want it to

* [06:35 - 06:37](https://www.youtube.com/watch?t=395&v=xrmNFmS889I)

do it 50 times a second

* [06:37 - 06:40](https://www.youtube.com/watch?t=397&v=xrmNFmS889I)

we're going to times by Time.DeltaTime.

* [06:41 - 06:43](https://www.youtube.com/watch?t=401&v=xrmNFmS889I)

And that's the end of the script.

* [06:43 - 06:44](https://www.youtube.com/watch?t=403&v=xrmNFmS889I)

Very simple.

* [06:44 - 06:46](https://www.youtube.com/watch?t=404&v=xrmNFmS889I)

So for those of you who are ready

* [06:46 - 06:49](https://www.youtube.com/watch?t=406&v=xrmNFmS889I)

what I want you to do is in the Unity editor

* [06:49 - 06:51](https://www.youtube.com/watch?t=409&v=xrmNFmS889I)

select CameraFollow and drag and drop

* [06:51 - 06:53](https://www.youtube.com/watch?t=411&v=xrmNFmS889I)

this on to Main Camera.

* [06:53 - 06:55](https://www.youtube.com/watch?t=413&v=xrmNFmS889I)

So from the project panel,

* [06:55 - 06:57](https://www.youtube.com/watch?t=415&v=xrmNFmS889I)

drop it on to Main Camera.

* [06:57 - 06:59](https://www.youtube.com/watch?t=417&v=xrmNFmS889I)

When you've done that and selected Main Camera

* [06:59 - 07:01](https://www.youtube.com/watch?t=419&v=xrmNFmS889I)

in the hierarchy, so you should see

* [07:01 - 07:05](https://www.youtube.com/watch?t=421&v=xrmNFmS889I)

this CameraFollow script that I have in the lower right.

* [07:06 - 07:08](https://www.youtube.com/watch?t=426&v=xrmNFmS889I)

You'll see that the public variables target

* [07:08 - 07:10](https://www.youtube.com/watch?t=428&v=xrmNFmS889I)

and smoothing appear

* [07:10 - 07:14](https://www.youtube.com/watch?t=430&v=xrmNFmS889I)

as things that we can assign to in the interface.

* [07:14 - 07:17](https://www.youtube.com/watch?t=434&v=xrmNFmS889I)

So target is looking for something called a transform

* [07:17 - 07:19](https://www.youtube.com/watch?t=437&v=xrmNFmS889I)

and smoothing is a number that we can

* [07:19 - 07:21](https://www.youtube.com/watch?t=439&v=xrmNFmS889I)

change to whatever we want.

* [07:21 - 07:23](https://www.youtube.com/watch?t=441&v=xrmNFmS889I)

Then what we're going to do is to assign the target,

* [07:23 - 07:24](https://www.youtube.com/watch?t=443&v=xrmNFmS889I)

the target is of course the player,

* [07:24 - 07:26](https://www.youtube.com/watch?t=444&v=xrmNFmS889I)

so we just drag and drop

* [07:27 - 07:30](https://www.youtube.com/watch?t=447&v=xrmNFmS889I)

player on to the target variable.

* [07:30 - 07:33](https://www.youtube.com/watch?t=450&v=xrmNFmS889I)

Grab the player from the hierarchy and not the scene view.

* [07:33 - 07:34](https://www.youtube.com/watch?t=453&v=xrmNFmS889I)

Clicking and dragging the player in the scene view is

* [07:34 - 07:36](https://www.youtube.com/watch?t=454&v=xrmNFmS889I)

just going to move the player.

* [07:37 - 07:39](https://www.youtube.com/watch?t=457&v=xrmNFmS889I)

One thing you'll notice as well is if you go

* [07:39 - 07:42](https://www.youtube.com/watch?t=459&v=xrmNFmS889I)

to click then drag

* [07:42 - 07:44](https://www.youtube.com/watch?t=462&v=xrmNFmS889I)

you lose the context of the main camera, so

* [07:44 - 07:46](https://www.youtube.com/watch?t=464&v=xrmNFmS889I)

select the main camera then

* [07:46 - 07:48](https://www.youtube.com/watch?t=466&v=xrmNFmS889I)

drag and drop player on there.

* [07:48 - 07:50](https://www.youtube.com/watch?t=468&v=xrmNFmS889I)

So basically all that's doing is it's finding

* [07:50 - 07:52](https://www.youtube.com/watch?t=470&v=xrmNFmS889I)

the game object reference and then it's finding the

* [07:52 - 07:56](https://www.youtube.com/watch?t=472&v=xrmNFmS889I)

exact thing that it wants, it wants to find the transform.

* [07:57 - 08:00](https://www.youtube.com/watch?t=477&v=xrmNFmS889I)

Then we're going to save

* [08:00 - 08:02](https://www.youtube.com/watch?t=480&v=xrmNFmS889I)

and then finally we're going to save our

* [08:02 - 08:05](https://www.youtube.com/watch?t=482&v=xrmNFmS889I)

player as a prefab.

* [08:05 - 08:07](https://www.youtube.com/watch?t=485&v=xrmNFmS889I)

So like I said before when we introduced the

* [08:07 - 08:09](https://www.youtube.com/watch?t=487&v=xrmNFmS889I)

environment the environment

* [08:09 - 08:11](https://www.youtube.com/watch?t=489&v=xrmNFmS889I)

was saved as a prefab because we've already assigned

* [08:11 - 08:13](https://www.youtube.com/watch?t=491&v=xrmNFmS889I)

a bunch of components to it so if you've got

* [08:13 - 08:15](https://www.youtube.com/watch?t=493&v=xrmNFmS889I)

something setup the way you want it and you want to

* [08:15 - 08:17](https://www.youtube.com/watch?t=495&v=xrmNFmS889I)

save it in to the project, so we might want to use

* [08:17 - 08:19](https://www.youtube.com/watch?t=497&v=xrmNFmS889I)

the player in other levels of the game

* [08:19 - 08:21](https://www.youtube.com/watch?t=499&v=xrmNFmS889I)

so we save it as a prefab and the way that you can

* [08:21 - 08:24](https://www.youtube.com/watch?t=501&v=xrmNFmS889I)

do that is just to drag it anywhere in to the project.

* [08:24 - 08:27](https://www.youtube.com/watch?t=504&v=xrmNFmS889I)

We happened to have a prefabs folder but you don't need to

* [08:27 - 08:31](https://www.youtube.com/watch?t=507&v=xrmNFmS889I)

drag it in to there but we'd like you to.

* [08:31 - 08:33](https://www.youtube.com/watch?t=511&v=xrmNFmS889I)

Player, drag and drop from the hierarchy

* [08:33 - 08:36](https://www.youtube.com/watch?t=513&v=xrmNFmS889I)

and drop it in to the Prefabs folder in the project.

* [08:37 - 08:39](https://www.youtube.com/watch?t=517&v=xrmNFmS889I)

If you turn it in to a prefab it's an asset,

* [08:39 - 08:42](https://www.youtube.com/watch?t=519&v=xrmNFmS889I)

a hard dry file you can save it, export it, reuse it

* [08:42 - 08:45](https://www.youtube.com/watch?t=522&v=xrmNFmS889I)

all over the place and then

* [08:45 - 08:48](https://www.youtube.com/watch?t=525&v=xrmNFmS889I)

yeah, so there's more benefits to turn things in to prefabs.

* [08:48 - 08:50](https://www.youtube.com/watch?t=528&v=xrmNFmS889I)

So I want you to save your scene right now and

* [08:50 - 08:53](https://www.youtube.com/watch?t=530&v=xrmNFmS889I)

press play and you should have

* [08:53 - 08:55](https://www.youtube.com/watch?t=533&v=xrmNFmS889I)

a little character that runs around

* [08:55 - 08:58](https://www.youtube.com/watch?t=535&v=xrmNFmS889I)

and you can move the camera, it should be tracking him.

* [08:59 - 09:01](https://www.youtube.com/watch?t=539&v=xrmNFmS889I)

And we'll show you what that looks like right now.

* [09:01 - 09:03](https://www.youtube.com/watch?t=541&v=xrmNFmS889I)

You should be seeing this.

* [09:03 - 09:05](https://www.youtube.com/watch?t=543&v=xrmNFmS889I)

Camera's now tracking around,

* [09:05 - 09:07](https://www.youtube.com/watch?t=545&v=xrmNFmS889I)

and we can rotate

* [09:08 - 09:10](https://www.youtube.com/watch?t=548&v=xrmNFmS889I)

like this.

# Phase 4

* The next phase we're going to go in to
* [00:02 - 00:06](https://www.youtube.com/watch?t=2&v=xUl-Agx2cLc)

is to create our first enemy.

* [00:06 - 00:08](https://www.youtube.com/watch?t=6&v=xUl-Agx2cLc)

We need our enemies in the game to

* [00:08 - 00:11](https://www.youtube.com/watch?t=8&v=xUl-Agx2cLc)

damage the player, we need them to follow the player,

* [00:11 - 00:13](https://www.youtube.com/watch?t=11&v=xUl-Agx2cLc)

but in this particular one we're just going to create

* [00:13 - 00:16](https://www.youtube.com/watch?t=13&v=xUl-Agx2cLc)

the first enemy and make him follow you around.

* [00:17 - 00:19](https://www.youtube.com/watch?t=17&v=xUl-Agx2cLc)

So let's get on with that.

* [00:19 - 00:21](https://www.youtube.com/watch?t=19&v=xUl-Agx2cLc)

As before with the player

* [00:21 - 00:24](https://www.youtube.com/watch?t=21&v=xUl-Agx2cLc)

in the Models folder in Characters you will

* [00:24 - 00:26](https://www.youtube.com/watch?t=24&v=xUl-Agx2cLc)

find there are some models.

* [00:27 - 00:29](https://www.youtube.com/watch?t=27&v=xUl-Agx2cLc)

One of those models

* [00:29 - 00:32](https://www.youtube.com/watch?t=29&v=xUl-Agx2cLc)

is this lovingly created zombunny,

* [00:32 - 00:35](https://www.youtube.com/watch?t=32&v=xUl-Agx2cLc)

which looks something like this.

* [00:37 - 00:39](https://www.youtube.com/watch?t=37&v=xUl-Agx2cLc)

And what we're going to do with that is to

* [00:39 - 00:41](https://www.youtube.com/watch?t=39&v=xUl-Agx2cLc)

place him directly in to the scene and then

* [00:41 - 00:43](https://www.youtube.com/watch?t=41&v=xUl-Agx2cLc)

start working with him in a similar way

* [00:43 - 00:45](https://www.youtube.com/watch?t=43&v=xUl-Agx2cLc)

that we did with the player.

* [00:45 - 00:47](https://www.youtube.com/watch?t=45&v=xUl-Agx2cLc)

As usual I'm just going to quickly hit Save

* [00:47 - 00:49](https://www.youtube.com/watch?t=47&v=xUl-Agx2cLc)

just so I don't loose any work if we get a crash

* [00:49 - 00:52](https://www.youtube.com/watch?t=49&v=xUl-Agx2cLc)

and then I'm going to

* [00:52 - 00:54](https://www.youtube.com/watch?t=52&v=xUl-Agx2cLc)

drag my scene view around

* [00:54 - 00:56](https://www.youtube.com/watch?t=54&v=xUl-Agx2cLc)

and this bit really doesn't matter where we place

* [00:56 - 00:58](https://www.youtube.com/watch?t=56&v=xUl-Agx2cLc)

him because we're going to spawn him later on

* [00:58 - 01:00](https://www.youtube.com/watch?t=58&v=xUl-Agx2cLc)

I'm going to use dragging

* [01:00 - 01:02](https://www.youtube.com/watch?t=60&v=xUl-Agx2cLc)

from the project window and you can see that it

* [01:02 - 01:04](https://www.youtube.com/watch?t=62&v=xUl-Agx2cLc)

snaps to the environment or whatever I happened

* [01:04 - 01:05](https://www.youtube.com/watch?t=64&v=xUl-Agx2cLc)

to place him on to.

* [01:05 - 01:06](https://www.youtube.com/watch?t=65&v=xUl-Agx2cLc)

I'm just going to drop him near the player

* [01:06 - 01:08](https://www.youtube.com/watch?t=66&v=xUl-Agx2cLc)

somewhere like that.

* [01:08 - 01:10](https://www.youtube.com/watch?t=68&v=xUl-Agx2cLc)

Then when we shoot this

* [01:10 - 01:12](https://www.youtube.com/watch?t=70&v=xUl-Agx2cLc)

bunny we're going to have

* [01:12 - 01:14](https://www.youtube.com/watch?t=72&v=xUl-Agx2cLc)

stuff kind of fly out of him.

* [01:14 - 01:18](https://www.youtube.com/watch?t=74&v=xUl-Agx2cLc)

We've created for you a particle system to do just that.

* [01:19 - 01:23](https://www.youtube.com/watch?t=79&v=xUl-Agx2cLc)

In the Prefabs folder you will find

* [01:23 - 01:26](https://www.youtube.com/watch?t=83&v=xUl-Agx2cLc)

a HitParticles prefab.

* [01:26 - 01:28](https://www.youtube.com/watch?t=86&v=xUl-Agx2cLc)

So like we said before prefabs are a way of storing

* [01:28 - 01:30](https://www.youtube.com/watch?t=88&v=xUl-Agx2cLc)

something that you've already setup and we did

* [01:30 - 01:32](https://www.youtube.com/watch?t=90&v=xUl-Agx2cLc)

exactly the same thing, we've created this

* [01:32 - 01:34](https://www.youtube.com/watch?t=92&v=xUl-Agx2cLc)

HitParticles, and what we need to do

* [01:34 - 01:38](https://www.youtube.com/watch?t=94&v=xUl-Agx2cLc)

is apply this to the Zombunny.

* [01:38 - 01:40](https://www.youtube.com/watch?t=98&v=xUl-Agx2cLc)

In Unity all game objects that you put in

* [01:40 - 01:42](https://www.youtube.com/watch?t=100&v=xUl-Agx2cLc)

can have a hierarchy.

* [01:43 - 01:46](https://www.youtube.com/watch?t=103&v=xUl-Agx2cLc)

The Zombunny has a child object which is it's

* [01:46 - 01:48](https://www.youtube.com/watch?t=106&v=xUl-Agx2cLc)

mesh, it's kind of outline

* [01:48 - 01:50](https://www.youtube.com/watch?t=108&v=xUl-Agx2cLc)

but it also has a parent and we want to

* [01:50 - 01:52](https://www.youtube.com/watch?t=110&v=xUl-Agx2cLc)

drag drop this particle system

* [01:52 - 01:55](https://www.youtube.com/watch?t=112&v=xUl-Agx2cLc)

on so that it's attached to the parent.

* [01:55 - 01:57](https://www.youtube.com/watch?t=115&v=xUl-Agx2cLc)

So what I'm going to do is select my Zombunny

* [01:57 - 02:01](https://www.youtube.com/watch?t=117&v=xUl-Agx2cLc)

and I'm going to drag and drop HitParticles

* [02:01 - 02:03](https://www.youtube.com/watch?t=121&v=xUl-Agx2cLc)

on to the parent Zombunny

* [02:03 - 02:05](https://www.youtube.com/watch?t=123&v=xUl-Agx2cLc)

so that when we expand it we've got

* [02:05 - 02:09](https://www.youtube.com/watch?t=125&v=xUl-Agx2cLc)

Zombunny, the actual object itself and we've got HitParticles.

* [02:09 - 02:11](https://www.youtube.com/watch?t=129&v=xUl-Agx2cLc)

And basically all this is doing, if I select

* [02:11 - 02:13](https://www.youtube.com/watch?t=131&v=xUl-Agx2cLc)

my HitParticles now,

* [02:13 - 02:15](https://www.youtube.com/watch?t=133&v=xUl-Agx2cLc)

is creating this little puff of stuffing.

* [02:15 - 02:17](https://www.youtube.com/watch?t=135&v=xUl-Agx2cLc)

I can see that because I've got

* [02:17 - 02:19](https://www.youtube.com/watch?t=137&v=xUl-Agx2cLc)

that game object selected the scene view shows

* [02:19 - 02:21](https://www.youtube.com/watch?t=139&v=xUl-Agx2cLc)

me the particle effect overlay

* [02:21 - 02:23](https://www.youtube.com/watch?t=141&v=xUl-Agx2cLc)

and you can see it's creating a puff of

* [02:23 - 02:25](https://www.youtube.com/watch?t=143&v=xUl-Agx2cLc)

fluff that's coming out of him.

* [02:25 - 02:27](https://www.youtube.com/watch?t=145&v=xUl-Agx2cLc)

This particle system, we didn't want to get bogged

* [02:27 - 02:29](https://www.youtube.com/watch?t=147&v=xUl-Agx2cLc)

down too much with these various

* [02:29 - 02:31](https://www.youtube.com/watch?t=149&v=xUl-Agx2cLc)

settings but we're basically using

* [02:31 - 02:33](https://www.youtube.com/watch?t=151&v=xUl-Agx2cLc)

a texture which is applied to

* [02:33 - 02:37](https://www.youtube.com/watch?t=153&v=xUl-Agx2cLc)

this to just fire out a little emission of those.

* [02:37 - 02:39](https://www.youtube.com/watch?t=157&v=xUl-Agx2cLc)

Again we want to

* [02:39 - 02:41](https://www.youtube.com/watch?t=159&v=xUl-Agx2cLc)

detect whether this is something that we

* [02:41 - 02:43](https://www.youtube.com/watch?t=161&v=xUl-Agx2cLc)

can shoot at, so similar to how

* [02:43 - 02:47](https://www.youtube.com/watch?t=163&v=xUl-Agx2cLc)

we detected whether we can turn to face

* [02:47 - 02:49](https://www.youtube.com/watch?t=167&v=xUl-Agx2cLc)

a particular way by isolating

* [02:49 - 02:51](https://www.youtube.com/watch?t=169&v=xUl-Agx2cLc)

the floor on to a floor layer

* [02:51 - 02:55](https://www.youtube.com/watch?t=171&v=xUl-Agx2cLc)

this Zombunny is going to be on a shootable layer.

* [02:55 - 02:57](https://www.youtube.com/watch?t=175&v=xUl-Agx2cLc)

So with the Zombunny parent selected

* [02:57 - 02:59](https://www.youtube.com/watch?t=177&v=xUl-Agx2cLc)

make sure you reselect the parent,

* [02:59 - 03:01](https://www.youtube.com/watch?t=179&v=xUl-Agx2cLc)

go to Layer at the top of the inspector

* [03:01 - 03:03](https://www.youtube.com/watch?t=181&v=xUl-Agx2cLc)

and choose Shootable.

* [03:03 - 03:05](https://www.youtube.com/watch?t=183&v=xUl-Agx2cLc)

Set that to shootable and then

* [03:05 - 03:07](https://www.youtube.com/watch?t=185&v=xUl-Agx2cLc)

it's going to ask you if you would like

* [03:07 - 03:10](https://www.youtube.com/watch?t=187&v=xUl-Agx2cLc)

to changing the children.

* [03:11 - 03:13](https://www.youtube.com/watch?t=191&v=xUl-Agx2cLc)

Basically all this is saying is do you want them all to be on

* [03:13 - 03:18](https://www.youtube.com/watch?t=193&v=xUl-Agx2cLc)

the same layer, this child objects, say yes, change the children.

* [03:18 - 03:20](https://www.youtube.com/watch?t=198&v=xUl-Agx2cLc)

A quick note, the environment

* [03:20 - 03:22](https://www.youtube.com/watch?t=200&v=xUl-Agx2cLc)

that you all dragged in to the scene at the start

* [03:22 - 03:24](https://www.youtube.com/watch?t=202&v=xUl-Agx2cLc)

is also on the shootable layer, so that

* [03:24 - 03:27](https://www.youtube.com/watch?t=204&v=xUl-Agx2cLc)

means that when we later give the

* [03:27 - 03:30](https://www.youtube.com/watch?t=207&v=xUl-Agx2cLc)

layer a working gun you can hit the environment as well.

* [03:31 - 03:33](https://www.youtube.com/watch?t=211&v=xUl-Agx2cLc)

We've done that, and then we basically

* [03:33 - 03:35](https://www.youtube.com/watch?t=213&v=xUl-Agx2cLc)

want to setup the Zombunny in a similar way

* [03:35 - 03:37](https://www.youtube.com/watch?t=215&v=xUl-Agx2cLc)

to the player, so we want him to have physics,

* [03:37 - 03:40](https://www.youtube.com/watch?t=217&v=xUl-Agx2cLc)

we want him to have a physical presence in the world

* [03:40 - 03:42](https://www.youtube.com/watch?t=220&v=xUl-Agx2cLc)

so we're going to do some similar

* [03:42 - 03:44](https://www.youtube.com/watch?t=222&v=xUl-Agx2cLc)

things that we did before.

* [03:44 - 03:46](https://www.youtube.com/watch?t=224&v=xUl-Agx2cLc)

The first one of those we're going to do is to

* [03:46 - 03:48](https://www.youtube.com/watch?t=226&v=xUl-Agx2cLc)

add a rigidbody component.

* [03:48 - 03:50](https://www.youtube.com/watch?t=228&v=xUl-Agx2cLc)

Just to give you a different way of doing things

* [03:50 - 03:52](https://www.youtube.com/watch?t=230&v=xUl-Agx2cLc)

we've previously used the menu but

* [03:52 - 03:54](https://www.youtube.com/watch?t=232&v=xUl-Agx2cLc)

you'll notice that this is actually a search field.

* [03:54 - 03:56](https://www.youtube.com/watch?t=234&v=xUl-Agx2cLc)

So I'm just going to type in Rig and I go

* [03:56 - 03:58](https://www.youtube.com/watch?t=236&v=xUl-Agx2cLc)

straight to rigidbody, I can hit

* [03:58 - 04:00](https://www.youtube.com/watch?t=238&v=xUl-Agx2cLc)

return to add that.

* [04:00 - 04:02](https://www.youtube.com/watch?t=240&v=xUl-Agx2cLc)

I'm just going to make that expanded

* [04:02 - 04:04](https://www.youtube.com/watch?t=242&v=xUl-Agx2cLc)

so that I can apply some settings.

* [04:04 - 04:07](https://www.youtube.com/watch?t=244&v=xUl-Agx2cLc)

Again, drag an angular drag

* [04:07 - 04:09](https://www.youtube.com/watch?t=247&v=xUl-Agx2cLc)

should be set to infinity, so I'm going to

* [04:09 - 04:11](https://www.youtube.com/watch?t=249&v=xUl-Agx2cLc)

type in INF, hit return,

* [04:11 - 04:14](https://www.youtube.com/watch?t=251&v=xUl-Agx2cLc)

and it should change to capitalised Infinity.

* [04:14 - 04:16](https://www.youtube.com/watch?t=254&v=xUl-Agx2cLc)

And the constraints are exactly the same.

* [04:16 - 04:19](https://www.youtube.com/watch?t=256&v=xUl-Agx2cLc)

We want them to be able to rotate

* [04:19 - 04:22](https://www.youtube.com/watch?t=259&v=xUl-Agx2cLc)

only in the Y axis, we want them to only

* [04:22 - 04:24](https://www.youtube.com/watch?t=262&v=xUl-Agx2cLc)

be moving in X and Z

* [04:24 - 04:26](https://www.youtube.com/watch?t=264&v=xUl-Agx2cLc)

and frozen position Y.

* [04:26 - 04:28](https://www.youtube.com/watch?t=266&v=xUl-Agx2cLc)

Your constraints should look like this.

* [04:28 - 04:33](https://www.youtube.com/watch?t=268&v=xUl-Agx2cLc)

Freeze position Y, freeze rotation X and Zee.

* [04:34 - 04:36](https://www.youtube.com/watch?t=274&v=xUl-Agx2cLc)

In order to actually give this physics

* [04:36 - 04:38](https://www.youtube.com/watch?t=276&v=xUl-Agx2cLc)

object a boundary we're going to put in

* [04:38 - 04:40](https://www.youtube.com/watch?t=278&v=xUl-Agx2cLc)

a capsule collider,

* [04:40 - 04:43](https://www.youtube.com/watch?t=280&v=xUl-Agx2cLc)

the outline of it's physical shape.

* [04:43 - 04:46](https://www.youtube.com/watch?t=283&v=xUl-Agx2cLc)

I'm hitting Add Component one more time

* [04:46 - 04:50](https://www.youtube.com/watch?t=286&v=xUl-Agx2cLc)

and then I'm going to type in Cap for capsule collider

* [04:50 - 04:52](https://www.youtube.com/watch?t=290&v=xUl-Agx2cLc)

and the settings for it are

* [04:53 - 04:58](https://www.youtube.com/watch?t=293&v=xUl-Agx2cLc)

Centre value of Y 0.8,

* [04:58 - 05:01](https://www.youtube.com/watch?t=298&v=xUl-Agx2cLc)

and a height of 1.5.

* [05:03 - 05:06](https://www.youtube.com/watch?t=303&v=xUl-Agx2cLc)

So it should look like this.

* [05:07 - 05:10](https://www.youtube.com/watch?t=307&v=xUl-Agx2cLc)

We need this character to attack the player

* [05:10 - 05:12](https://www.youtube.com/watch?t=310&v=xUl-Agx2cLc)

so this bit's going to be slightly different

* [05:12 - 05:14](https://www.youtube.com/watch?t=312&v=xUl-Agx2cLc)

to how the player was setup.

* [05:14 - 05:16](https://www.youtube.com/watch?t=314&v=xUl-Agx2cLc)

The capsule collider is there to give

* [05:16 - 05:18](https://www.youtube.com/watch?t=316&v=xUl-Agx2cLc)

the character a physical presence but what

* [05:18 - 05:20](https://www.youtube.com/watch?t=318&v=xUl-Agx2cLc)

we want to do is to give him the

* [05:20 - 05:22](https://www.youtube.com/watch?t=320&v=xUl-Agx2cLc)

ability to detect the player

* [05:22 - 05:24](https://www.youtube.com/watch?t=322&v=xUl-Agx2cLc)

We're going to use one more collider to do that

* [05:24 - 05:28](https://www.youtube.com/watch?t=324&v=xUl-Agx2cLc)

and we're going to use a trigger collider for this purpose.

* [05:28 - 05:30](https://www.youtube.com/watch?t=328&v=xUl-Agx2cLc)

So we're going to Add Component one more time

* [05:30 - 05:33](https://www.youtube.com/watch?t=330&v=xUl-Agx2cLc)

and we're going to say SPH, sphere collider.

* [05:33 - 05:34](https://www.youtube.com/watch?t=333&v=xUl-Agx2cLc)

Hit return.

* [05:34 - 05:37](https://www.youtube.com/watch?t=334&v=xUl-Agx2cLc)

You can also go to Add Component - Physics

* [05:37 - 05:40](https://www.youtube.com/watch?t=337&v=xUl-Agx2cLc)

Sphere Collider, but that's just a short way of doing that.

* [05:42 - 05:45](https://www.youtube.com/watch?t=342&v=xUl-Agx2cLc)

A trigger is something that doesn't have a physical presence,

* [05:45 - 05:47](https://www.youtube.com/watch?t=345&v=xUl-Agx2cLc)

it's a collider, which means you can check

* [05:47 - 05:49](https://www.youtube.com/watch?t=347&v=xUl-Agx2cLc)

when something's intersecting it, but it doesn't have

* [05:49 - 05:52](https://www.youtube.com/watch?t=349&v=xUl-Agx2cLc)

a physical presence so we can just walk straight through it.

* [05:52 - 05:55](https://www.youtube.com/watch?t=352&v=xUl-Agx2cLc)

So we check the Is Trigger box

* [05:55 - 05:57](https://www.youtube.com/watch?t=355&v=xUl-Agx2cLc)

and then if we just have a look

* [05:57 - 06:01](https://www.youtube.com/watch?t=357&v=xUl-Agx2cLc)

back at our bunny very briefly at the same window

* [06:01 - 06:03](https://www.youtube.com/watch?t=361&v=xUl-Agx2cLc)

you can see that by default it's set at the

* [06:03 - 06:05](https://www.youtube.com/watch?t=363&v=xUl-Agx2cLc)

origin of this, which is at it's feet.

* [06:05 - 06:09](https://www.youtube.com/watch?t=365&v=xUl-Agx2cLc)

So we're going to set the centre Y to 0.8

* [06:09 - 06:14](https://www.youtube.com/watch?t=369&v=xUl-Agx2cLc)

and the radius also to 0.8.

* [06:14 - 06:16](https://www.youtube.com/watch?t=374&v=xUl-Agx2cLc)

What you'll see is that if I just expand my

* [06:16 - 06:18](https://www.youtube.com/watch?t=376&v=xUl-Agx2cLc)

capsule collider again

* [06:18 - 06:23](https://www.youtube.com/watch?t=378&v=xUl-Agx2cLc)

it's slightly further out than the

* [06:23 - 06:25](https://www.youtube.com/watch?t=383&v=xUl-Agx2cLc)

capsule collier is, the reason being that

* [06:25 - 06:27](https://www.youtube.com/watch?t=385&v=xUl-Agx2cLc)

we want to detect the player within

* [06:27 - 06:29](https://www.youtube.com/watch?t=387&v=xUl-Agx2cLc)

the bunnies reach.

* [06:29 - 06:31](https://www.youtube.com/watch?t=389&v=xUl-Agx2cLc)

So we want it to bump in to stuff but we want

* [06:31 - 06:33](https://www.youtube.com/watch?t=391&v=xUl-Agx2cLc)

it's reach to be able to harm the player

* [06:33 - 06:35](https://www.youtube.com/watch?t=393&v=xUl-Agx2cLc)

so we make that sphere collider slightly bigger,

* [06:35 - 06:37](https://www.youtube.com/watch?t=395&v=xUl-Agx2cLc)

we make it a trigger so that it's not actually

* [06:37 - 06:39](https://www.youtube.com/watch?t=397&v=xUl-Agx2cLc)

going to bump in to anything,

* [06:39 - 06:41](https://www.youtube.com/watch?t=399&v=xUl-Agx2cLc)

that's how we're going to detect the player.

* [06:41 - 06:43](https://www.youtube.com/watch?t=401&v=xUl-Agx2cLc)

Again with triggers

* [06:43 - 06:45](https://www.youtube.com/watch?t=403&v=xUl-Agx2cLc)

the actual interactions within a

* [06:45 - 06:47](https://www.youtube.com/watch?t=405&v=xUl-Agx2cLc)

scene is not what we use a trigger for.

* [06:47 - 06:49](https://www.youtube.com/watch?t=407&v=xUl-Agx2cLc)

More importantly a trigger, when anything collides

* [06:49 - 06:51](https://www.youtube.com/watch?t=409&v=xUl-Agx2cLc)

with a trigger or goes in to a trigger

* [06:51 - 06:53](https://www.youtube.com/watch?t=411&v=xUl-Agx2cLc)

a function is called when you have a script attached

* [06:53 - 06:55](https://www.youtube.com/watch?t=413&v=xUl-Agx2cLc)

that says 'hey, something touched that trigger'.

* [06:55 - 06:57](https://www.youtube.com/watch?t=415&v=xUl-Agx2cLc)

And that's when we write our

* [06:57 - 06:59](https://www.youtube.com/watch?t=417&v=xUl-Agx2cLc)

individualised code that'll be like

* [06:59 - 07:01](https://www.youtube.com/watch?t=419&v=xUl-Agx2cLc)

'okay, something touched that trigger'.

* [07:01 - 07:03](https://www.youtube.com/watch?t=421&v=xUl-Agx2cLc)

It's interactions in the scene view are not what

* [07:03 - 07:05](https://www.youtube.com/watch?t=423&v=xUl-Agx2cLc)

we're interested in, we're actually interested in the

* [07:05 - 07:07](https://www.youtube.com/watch?t=425&v=xUl-Agx2cLc)

behind the scenes interaction we get to write

* [07:07 - 07:09](https://www.youtube.com/watch?t=427&v=xUl-Agx2cLc)

with our own code.

* [07:09 - 07:11](https://www.youtube.com/watch?t=429&v=xUl-Agx2cLc)

Finally the last thing we're going to do

* [07:11 - 07:13](https://www.youtube.com/watch?t=431&v=xUl-Agx2cLc)

to complete the Zombunny is just add an audio

* [07:13 - 07:15](https://www.youtube.com/watch?t=433&v=xUl-Agx2cLc)

source so I'm going to type in

* [07:15 - 07:17](https://www.youtube.com/watch?t=435&v=xUl-Agx2cLc)

Audio, I'm going to scroll down,

* [07:17 - 07:19](https://www.youtube.com/watch?t=437&v=xUl-Agx2cLc)

I can use my arrow keys in this Add Component menu

* [07:19 - 07:22](https://www.youtube.com/watch?t=439&v=xUl-Agx2cLc)

and I'm going to use return to choose Audio Source.

* [07:22 - 07:24](https://www.youtube.com/watch?t=442&v=xUl-Agx2cLc)

This thing is just to allow him

* [07:24 - 07:26](https://www.youtube.com/watch?t=444&v=xUl-Agx2cLc)

to make a sound when he gets hurt

* [07:26 - 07:30](https://www.youtube.com/watch?t=446&v=xUl-Agx2cLc)

and then we're going to make that the default sound clip as well.

* [07:30 - 07:32](https://www.youtube.com/watch?t=450&v=xUl-Agx2cLc)

As before, using circle select I can

* [07:32 - 07:35](https://www.youtube.com/watch?t=452&v=xUl-Agx2cLc)

just click and choose Zombunny Hurt,

* [07:35 - 07:37](https://www.youtube.com/watch?t=455&v=xUl-Agx2cLc)

it's the very bottom one from the list.

* [07:37 - 07:39](https://www.youtube.com/watch?t=457&v=xUl-Agx2cLc)

I can double click it

* [07:39 - 07:41](https://www.youtube.com/watch?t=459&v=xUl-Agx2cLc)

to assign and close the window.

* [07:41 - 07:44](https://www.youtube.com/watch?t=461&v=xUl-Agx2cLc)

As before we don't want it to make

* [07:44 - 07:47](https://www.youtube.com/watch?t=464&v=xUl-Agx2cLc)

the sound so we're going to uncheck play on awake.

* [07:47 - 07:49](https://www.youtube.com/watch?t=467&v=xUl-Agx2cLc)

We obviously don't want that to loop or anything

* [07:49 - 07:50](https://www.youtube.com/watch?t=469&v=xUl-Agx2cLc)

so we're going to leave that there.

* [07:50 - 07:52](https://www.youtube.com/watch?t=470&v=xUl-Agx2cLc)

Next we need to make the guy actually follow

* [07:52 - 07:54](https://www.youtube.com/watch?t=472&v=xUl-Agx2cLc)

the player so in Unity there's a

* [07:54 - 07:57](https://www.youtube.com/watch?t=474&v=xUl-Agx2cLc)

system called Nav Mesh.

* [07:57 - 08:01](https://www.youtube.com/watch?t=477&v=xUl-Agx2cLc)

In Unity Window - Navigation is what you need.

* [08:02 - 08:04](https://www.youtube.com/watch?t=482&v=xUl-Agx2cLc)

Window - Navigation.

* [08:06 - 08:08](https://www.youtube.com/watch?t=486&v=xUl-Agx2cLc)

That should automatically dock itself

* [08:08 - 08:10](https://www.youtube.com/watch?t=488&v=xUl-Agx2cLc)

next to the inspector. If it doesn't that's a great place

* [08:10 - 08:12](https://www.youtube.com/watch?t=490&v=xUl-Agx2cLc)

to put it, so drag and drop that tab

* [08:12 - 08:15](https://www.youtube.com/watch?t=492&v=xUl-Agx2cLc)

next to the inspector on the right of your interface.

* [08:15 - 08:17](https://www.youtube.com/watch?t=495&v=xUl-Agx2cLc)

We're going to reselect the Zombunny and go

* [08:17 - 08:18](https://www.youtube.com/watch?t=497&v=xUl-Agx2cLc)

back to the inspector.

* [08:18 - 08:20](https://www.youtube.com/watch?t=498&v=xUl-Agx2cLc)

The navigation panel is

* [08:20 - 08:22](https://www.youtube.com/watch?t=500&v=xUl-Agx2cLc)

there for us to setup our level.

* [08:22 - 08:24](https://www.youtube.com/watch?t=502&v=xUl-Agx2cLc)

We're going to setup our Zombunny first and then

* [08:24 - 08:26](https://www.youtube.com/watch?t=504&v=xUl-Agx2cLc)

go back and setup the level.

* [08:26 - 08:28](https://www.youtube.com/watch?t=506&v=xUl-Agx2cLc)

With our Zombunny selected

* [08:28 - 08:30](https://www.youtube.com/watch?t=508&v=xUl-Agx2cLc)

I'm just going to close

* [08:30 - 08:32](https://www.youtube.com/watch?t=510&v=xUl-Agx2cLc)

some of these by collapsing them up to give us

* [08:32 - 08:34](https://www.youtube.com/watch?t=512&v=xUl-Agx2cLc)

more space to look at.

* [08:34 - 08:38](https://www.youtube.com/watch?t=514&v=xUl-Agx2cLc)

I'm going to add something called a Nav Mesh Agent.

* [08:38 - 08:40](https://www.youtube.com/watch?t=518&v=xUl-Agx2cLc)

Like I said there's a system called Nav Mesh

* [08:40 - 08:43](https://www.youtube.com/watch?t=520&v=xUl-Agx2cLc)

which is used for a simple AI in Unity

* [08:43 - 08:45](https://www.youtube.com/watch?t=523&v=xUl-Agx2cLc)

and what it means is you can

* [08:45 - 08:47](https://www.youtube.com/watch?t=525&v=xUl-Agx2cLc)

do a process called baking, which is to

* [08:47 - 08:50](https://www.youtube.com/watch?t=527&v=xUl-Agx2cLc)

specify which parts of the level are navigable.

* [08:50 - 08:52](https://www.youtube.com/watch?t=530&v=xUl-Agx2cLc)

And then you have something called an Agent

* [08:52 - 08:54](https://www.youtube.com/watch?t=532&v=xUl-Agx2cLc)

which is something that's going to traverse that, or move

* [08:54 - 08:56](https://www.youtube.com/watch?t=534&v=xUl-Agx2cLc)

over that environment.

* [08:56 - 08:58](https://www.youtube.com/watch?t=536&v=xUl-Agx2cLc)

The Zombunny is something that's going to do that.

* [08:58 - 09:00](https://www.youtube.com/watch?t=538&v=xUl-Agx2cLc)

We are going to give it a

* [09:00 - 09:02](https://www.youtube.com/watch?t=540&v=xUl-Agx2cLc)

Nav Mesh Agent Component.

* [09:03 - 09:05](https://www.youtube.com/watch?t=543&v=xUl-Agx2cLc)

You can see that it has an outline here

* [09:05 - 09:07](https://www.youtube.com/watch?t=545&v=xUl-Agx2cLc)

similar to a collider

* [09:07 - 09:11](https://www.youtube.com/watch?t=547&v=xUl-Agx2cLc)

and we're going to set a more appropriate default of 0.3.

* [09:11 - 09:13](https://www.youtube.com/watch?t=551&v=xUl-Agx2cLc)

0.3 in radius.

* [09:13 - 09:15](https://www.youtube.com/watch?t=553&v=xUl-Agx2cLc)

We're going to set the speed to 3 by default

* [09:15 - 09:20](https://www.youtube.com/watch?t=555&v=xUl-Agx2cLc)

and stopping distance to 1.3.

* [09:21 - 09:23](https://www.youtube.com/watch?t=561&v=xUl-Agx2cLc)

We're going to set the heigh, which is slightly

* [09:23 - 09:26](https://www.youtube.com/watch?t=563&v=xUl-Agx2cLc)

lower down to 1.1.

* [09:27 - 09:29](https://www.youtube.com/watch?t=567&v=xUl-Agx2cLc)

Because it's easier to see these settings

* [09:29 - 09:32](https://www.youtube.com/watch?t=569&v=xUl-Agx2cLc)

on the powerpoint I'm just going to switch over to that.

* [09:32 - 09:34](https://www.youtube.com/watch?t=572&v=xUl-Agx2cLc)

So we've added a nav mesh component.

* [09:34 - 09:38](https://www.youtube.com/watch?t=574&v=xUl-Agx2cLc)

The radius is 0.3, the speed is 3,

* [09:38 - 09:41](https://www.youtube.com/watch?t=578&v=xUl-Agx2cLc)

stopping distance is 1.3

* [09:41 - 09:44](https://www.youtube.com/watch?t=581&v=xUl-Agx2cLc)

and height, a few properties down is 1.1.

* [09:44 - 09:47](https://www.youtube.com/watch?t=584&v=xUl-Agx2cLc)

It should look like what we have in Unity.

* [09:49 - 09:51](https://www.youtube.com/watch?t=589&v=xUl-Agx2cLc)

If you recall for the player we're moving

* [09:51 - 09:53](https://www.youtube.com/watch?t=591&v=xUl-Agx2cLc)

the player using physics,

* [09:53 - 09:55](https://www.youtube.com/watch?t=593&v=xUl-Agx2cLc)

but we're not doing that with the bunnies themselves.

* [09:55 - 09:57](https://www.youtube.com/watch?t=595&v=xUl-Agx2cLc)

The nav mesh agent is actually

* [09:57 - 09:59](https://www.youtube.com/watch?t=597&v=xUl-Agx2cLc)

what is moving.

* [09:59 - 10:01](https://www.youtube.com/watch?t=599&v=xUl-Agx2cLc)

Just keep that in mind.

* [10:01 - 10:03](https://www.youtube.com/watch?t=601&v=xUl-Agx2cLc)

We're not actually going to be using forces with the bunnies,

* [10:03 - 10:05](https://www.youtube.com/watch?t=603&v=xUl-Agx2cLc)

instead the nav mesh agent is going to

* [10:05 - 10:07](https://www.youtube.com/watch?t=605&v=xUl-Agx2cLc)

pick and follow the targets

* [10:07 - 10:09](https://www.youtube.com/watch?t=607&v=xUl-Agx2cLc)

automatically while also

* [10:09 - 10:11](https://www.youtube.com/watch?t=609&v=xUl-Agx2cLc)

avoiding obstacles and things like that,

* [10:11 - 10:13](https://www.youtube.com/watch?t=611&v=xUl-Agx2cLc)

and that's what Will meant when he was talking about AI

* [10:13 - 10:14](https://www.youtube.com/watch?t=613&v=xUl-Agx2cLc)

it's AI pathfinding.

* [10:14 - 10:16](https://www.youtube.com/watch?t=614&v=xUl-Agx2cLc)

What I wanted to point out as well

* [10:16 - 10:19](https://www.youtube.com/watch?t=616&v=xUl-Agx2cLc)

and you guys don't need to do this so just watch,

* [10:19 - 10:23](https://www.youtube.com/watch?t=619&v=xUl-Agx2cLc)

the environment is already prefabbed.

* [10:23 - 10:25](https://www.youtube.com/watch?t=623&v=xUl-Agx2cLc)

We put colliders on to everything so you can see

* [10:25 - 10:28](https://www.youtube.com/watch?t=625&v=xUl-Agx2cLc)

that the player could bump in to all of these objects.

* [10:28 - 10:30](https://www.youtube.com/watch?t=628&v=xUl-Agx2cLc)

We used primitive colliders for performance reasons

* [10:30 - 10:32](https://www.youtube.com/watch?t=630&v=xUl-Agx2cLc)

to make it all work nice and neatly.

* [10:32 - 10:34](https://www.youtube.com/watch?t=632&v=xUl-Agx2cLc)

What you should also note about that is there's a

* [10:34 - 10:38](https://www.youtube.com/watch?t=634&v=xUl-Agx2cLc)

checkbox up at the top here called Static.

* [10:38 - 10:41](https://www.youtube.com/watch?t=638&v=xUl-Agx2cLc)

That's checked and that means that

* [10:41 - 10:43](https://www.youtube.com/watch?t=641&v=xUl-Agx2cLc)

Navigation Static is also checked.

* [10:43 - 10:45](https://www.youtube.com/watch?t=643&v=xUl-Agx2cLc)

So what that means is that all of the

* [10:45 - 10:47](https://www.youtube.com/watch?t=645&v=xUl-Agx2cLc)

things we've specified in here

* [10:47 - 10:49](https://www.youtube.com/watch?t=647&v=xUl-Agx2cLc)

as being a navigable space

* [10:49 - 10:51](https://www.youtube.com/watch?t=649&v=xUl-Agx2cLc)

are going to be included

* [10:51 - 10:53](https://www.youtube.com/watch?t=651&v=xUl-Agx2cLc)

when we bake the nav mesh, when we create

* [10:53 - 10:55](https://www.youtube.com/watch?t=653&v=xUl-Agx2cLc)

this navigable area.

* [10:55 - 10:57](https://www.youtube.com/watch?t=655&v=xUl-Agx2cLc)

What I want you to do now is to go to that

* [10:57 - 10:59](https://www.youtube.com/watch?t=657&v=xUl-Agx2cLc)

navigation window again and we're going to

* [10:59 - 11:02](https://www.youtube.com/watch?t=659&v=xUl-Agx2cLc)

switch over to the Bake tab,

* [11:02 - 11:04](https://www.youtube.com/watch?t=662&v=xUl-Agx2cLc)

the middle one of the three, and there we have

* [11:04 - 11:06](https://www.youtube.com/watch?t=664&v=xUl-Agx2cLc)

some settings that we're going to put in there.

* [11:06 - 11:10](https://www.youtube.com/watch?t=666&v=xUl-Agx2cLc)

The radius of the nav mesh is

* [11:10 - 11:14](https://www.youtube.com/watch?t=670&v=xUl-Agx2cLc)

approximately how near to a wall an agent can move

* [11:14 - 11:16](https://www.youtube.com/watch?t=674&v=xUl-Agx2cLc)

so we're going to have multiple types of enemy

* [11:16 - 11:19](https://www.youtube.com/watch?t=676&v=xUl-Agx2cLc)

in this so we've got some Zombunnys,

* [11:19 - 11:21](https://www.youtube.com/watch?t=679&v=xUl-Agx2cLc)

Zombears and some Helephants.

* [11:21 - 11:23](https://www.youtube.com/watch?t=681&v=xUl-Agx2cLc)

Now Helephants are a lot bigger

* [11:23 - 11:25](https://www.youtube.com/watch?t=683&v=xUl-Agx2cLc)

so we need to compromise with the

* [11:25 - 11:28](https://www.youtube.com/watch?t=685&v=xUl-Agx2cLc)

radius of the nav mesh.

* [11:28 - 11:30](https://www.youtube.com/watch?t=688&v=xUl-Agx2cLc)

Normally you'd want to have nav mesh agents

* [11:30 - 11:33](https://www.youtube.com/watch?t=690&v=xUl-Agx2cLc)

and nav meshes with the same radius

* [11:33 - 11:35](https://www.youtube.com/watch?t=693&v=xUl-Agx2cLc)

but since we've got different size agents we're going to

* [11:35 - 11:38](https://www.youtube.com/watch?t=695&v=xUl-Agx2cLc)

compromise and make the radius for it 0.75.

* [11:38 - 11:42](https://www.youtube.com/watch?t=698&v=xUl-Agx2cLc)

Likewise this height

* [11:42 - 11:44](https://www.youtube.com/watch?t=702&v=xUl-Agx2cLc)

is a compromise, we have Zombunnys

* [11:44 - 11:46](https://www.youtube.com/watch?t=704&v=xUl-Agx2cLc)

which we made 1.1 in height.

* [11:46 - 11:48](https://www.youtube.com/watch?t=706&v=xUl-Agx2cLc)

The Helephants are going to be a lot bigger

* [11:48 - 11:50](https://www.youtube.com/watch?t=708&v=xUl-Agx2cLc)

but we're going to make our height

* [11:50 - 11:51](https://www.youtube.com/watch?t=710&v=xUl-Agx2cLc)

a compromise between the two,

* [11:51 - 11:53](https://www.youtube.com/watch?t=711&v=xUl-Agx2cLc)

we're going to give it 1.2.

* [11:53 - 11:56](https://www.youtube.com/watch?t=713&v=xUl-Agx2cLc)

But normally if you've got one type of agent

* [11:56 - 11:59](https://www.youtube.com/watch?t=716&v=xUl-Agx2cLc)

and they're all the same give the radius

* [11:59 - 12:01](https://www.youtube.com/watch?t=719&v=xUl-Agx2cLc)

the same as the nav mesh agent and the height

* [12:01 - 12:03](https://www.youtube.com/watch?t=721&v=xUl-Agx2cLc)

the same as the nav mesh agent.

* [12:04 - 12:06](https://www.youtube.com/watch?t=724&v=xUl-Agx2cLc)

The next thing we're going to

* [12:06 - 12:08](https://www.youtube.com/watch?t=726&v=xUl-Agx2cLc)

change is the Step Height.

* [12:08 - 12:11](https://www.youtube.com/watch?t=728&v=xUl-Agx2cLc)

Your nav mesh agent can go up steps and

* [12:11 - 12:13](https://www.youtube.com/watch?t=731&v=xUl-Agx2cLc)

because our floor is uneven,

* [12:13 - 12:15](https://www.youtube.com/watch?t=733&v=xUl-Agx2cLc)

it's made up of floorboards that are

* [12:15 - 12:17](https://www.youtube.com/watch?t=735&v=xUl-Agx2cLc)

sticking up a bit like that, we need the nav mesh

* [12:17 - 12:19](https://www.youtube.com/watch?t=737&v=xUl-Agx2cLc)

agents to not go like 'oh I can't get over that

* [12:19 - 12:21](https://www.youtube.com/watch?t=739&v=xUl-Agx2cLc)

floorboard, I'd better got around it' so we need a

* [12:21 - 12:23](https://www.youtube.com/watch?t=741&v=xUl-Agx2cLc)

small step height to make sure that it can get up

* [12:23 - 12:25](https://www.youtube.com/watch?t=743&v=xUl-Agx2cLc)

over those bumps.

* [12:25 - 12:27](https://www.youtube.com/watch?t=745&v=xUl-Agx2cLc)

Then we're expanding the Advanced area

* [12:27 - 12:30](https://www.youtube.com/watch?t=747&v=xUl-Agx2cLc)

and we're setting the Width Inaccuracy

* [12:30 - 12:35](https://www.youtube.com/watch?t=750&v=xUl-Agx2cLc)

to just 1%, so drag that Width Inaccuracy down to 1.

* [12:35 - 12:39](https://www.youtube.com/watch?t=755&v=xUl-Agx2cLc)

The Width Inaccuracy affects how

* [12:39 - 12:41](https://www.youtube.com/watch?t=759&v=xUl-Agx2cLc)

carefully the nav mesh is baked.

* [12:41 - 12:43](https://www.youtube.com/watch?t=761&v=xUl-Agx2cLc)

A nav mesh can be baked very quickly

* [12:43 - 12:45](https://www.youtube.com/watch?t=763&v=xUl-Agx2cLc)

if you give it high inaccuracies

* [12:45 - 12:47](https://www.youtube.com/watch?t=765&v=xUl-Agx2cLc)

and it'll look quite angular and

* [12:47 - 12:49](https://www.youtube.com/watch?t=767&v=xUl-Agx2cLc)

it'll be quite approximate to your

* [12:49 - 12:51](https://www.youtube.com/watch?t=769&v=xUl-Agx2cLc)

environment but we want

* [12:51 - 12:54](https://www.youtube.com/watch?t=771&v=xUl-Agx2cLc)

it to be a very accurate nav mesh.

* [12:54 - 12:56](https://www.youtube.com/watch?t=774&v=xUl-Agx2cLc)

This is going to take a little while to bake but

* [12:56 - 12:58](https://www.youtube.com/watch?t=776&v=xUl-Agx2cLc)

we'll end up with a very nice nav mesh afterwards.

* [12:58 - 13:00](https://www.youtube.com/watch?t=778&v=xUl-Agx2cLc)

Once that's done you are hitting Bake

* [13:00 - 13:02](https://www.youtube.com/watch?t=780&v=xUl-Agx2cLc)

at the bottom of the window.

* [13:02 - 13:04](https://www.youtube.com/watch?t=782&v=xUl-Agx2cLc)

What you'll see in the scene view

* [13:04 - 13:06](https://www.youtube.com/watch?t=784&v=xUl-Agx2cLc)

once it's completed that process

* [13:06 - 13:08](https://www.youtube.com/watch?t=786&v=xUl-Agx2cLc)

is that you will see a blue overlay

* [13:08 - 13:10](https://www.youtube.com/watch?t=788&v=xUl-Agx2cLc)

on the entire level.

* [13:10 - 13:12](https://www.youtube.com/watch?t=790&v=xUl-Agx2cLc)

You will get a progress bar at the bottom,

* [13:12 - 13:14](https://www.youtube.com/watch?t=792&v=xUl-Agx2cLc)

it says 'exporting tiles' like this.

* [13:15 - 13:17](https://www.youtube.com/watch?t=795&v=xUl-Agx2cLc)

Once it's done that process you will

* [13:17 - 13:19](https://www.youtube.com/watch?t=797&v=xUl-Agx2cLc)

see an overlay in the scene view

* [13:19 - 13:21](https://www.youtube.com/watch?t=799&v=xUl-Agx2cLc)

as long as you are on the navigation window.

* [13:21 - 13:23](https://www.youtube.com/watch?t=801&v=xUl-Agx2cLc)

And it should look something like this.

* [13:23 - 13:25](https://www.youtube.com/watch?t=803&v=xUl-Agx2cLc)

So what's happening here is

* [13:25 - 13:28](https://www.youtube.com/watch?t=805&v=xUl-Agx2cLc)

nav agents and pathfinding and all that

* [13:28 - 13:29](https://www.youtube.com/watch?t=808&v=xUl-Agx2cLc)

will work with complex meshes,

* [13:29 - 13:31](https://www.youtube.com/watch?t=809&v=xUl-Agx2cLc)

however it is incredibly inefficient

* [13:31 - 13:33](https://www.youtube.com/watch?t=811&v=xUl-Agx2cLc)

and you're going to have all sorts of issues

* [13:33 - 13:35](https://www.youtube.com/watch?t=813&v=xUl-Agx2cLc)

if there's bumps and cracks and things like that

* [13:35 - 13:37](https://www.youtube.com/watch?t=815&v=xUl-Agx2cLc)

basically saying that while you can

* [13:37 - 13:39](https://www.youtube.com/watch?t=817&v=xUl-Agx2cLc)

traverse these unusually sized

* [13:39 - 13:41](https://www.youtube.com/watch?t=819&v=xUl-Agx2cLc)

and shaped meshes it's really not

* [13:41 - 13:42](https://www.youtube.com/watch?t=821&v=xUl-Agx2cLc)

worth it, right?

* [13:42 - 13:44](https://www.youtube.com/watch?t=822&v=xUl-Agx2cLc)

Generally you want your movement to be smooth

* [13:44 - 13:46](https://www.youtube.com/watch?t=824&v=xUl-Agx2cLc)

and you don't want it to be that inefficient.

* [13:46 - 13:48](https://www.youtube.com/watch?t=826&v=xUl-Agx2cLc)

When we bake a nav mesh what it's doing is

* [13:48 - 13:50](https://www.youtube.com/watch?t=828&v=xUl-Agx2cLc)

it's finding all of the static meshes

* [13:50 - 13:52](https://www.youtube.com/watch?t=830&v=xUl-Agx2cLc)

in our scene, things that are marked as

* [13:52 - 13:54](https://www.youtube.com/watch?t=832&v=xUl-Agx2cLc)

navigationally static and saying

* [13:54 - 13:56](https://www.youtube.com/watch?t=834&v=xUl-Agx2cLc)

'these aren't going to move, these are going to be

* [13:56 - 13:57](https://www.youtube.com/watch?t=836&v=xUl-Agx2cLc)

things that we can walk on'

* [13:57 - 14:00](https://www.youtube.com/watch?t=837&v=xUl-Agx2cLc)

and it's going to calculate a very simple

* [14:00 - 14:04](https://www.youtube.com/watch?t=840&v=xUl-Agx2cLc)

flat mesh and say 'it's not exact but it's

* [14:04 - 14:06](https://www.youtube.com/watch?t=844&v=xUl-Agx2cLc)

close enough and no one will ever know'

* [14:06 - 14:07](https://www.youtube.com/watch?t=846&v=xUl-Agx2cLc)

so it's much more efficient and it actually makes it

* [14:07 - 14:09](https://www.youtube.com/watch?t=847&v=xUl-Agx2cLc)

much more accurate as far as actually moving

* [14:09 - 14:12](https://www.youtube.com/watch?t=849&v=xUl-Agx2cLc)

around how you would expect things to move around.

* [14:12 - 14:14](https://www.youtube.com/watch?t=852&v=xUl-Agx2cLc)

That's what we're doing, we're on the fly

* [14:14 - 14:16](https://www.youtube.com/watch?t=854&v=xUl-Agx2cLc)

Unity is generating a new mesh

* [14:16 - 14:18](https://www.youtube.com/watch?t=856&v=xUl-Agx2cLc)

which is just a flat plane,

* [14:18 - 14:20](https://www.youtube.com/watch?t=858&v=xUl-Agx2cLc)

possibly with a slow to it,

* [14:20 - 14:22](https://www.youtube.com/watch?t=860&v=xUl-Agx2cLc)

but it's very simplified and it makes

* [14:22 - 14:26](https://www.youtube.com/watch?t=862&v=xUl-Agx2cLc)

the actual AI process of navigating very simple.

* [14:26 - 14:28](https://www.youtube.com/watch?t=866&v=xUl-Agx2cLc)

Just to make this very clear,

* [14:28 - 14:32](https://www.youtube.com/watch?t=868&v=xUl-Agx2cLc)

these things in our scene are marked as static

* [14:32 - 14:34](https://www.youtube.com/watch?t=872&v=xUl-Agx2cLc)

so if we wanted to move our blocks,

* [14:34 - 14:36](https://www.youtube.com/watch?t=874&v=xUl-Agx2cLc)

at some point we changed the design of the game

* [14:36 - 14:39](https://www.youtube.com/watch?t=876&v=xUl-Agx2cLc)

we would move them and we would rebake the nav mesh

* [14:39 - 14:42](https://www.youtube.com/watch?t=879&v=xUl-Agx2cLc)

to recalcuate that traversable area.

* [14:42 - 14:45](https://www.youtube.com/watch?t=882&v=xUl-Agx2cLc)

Okay, so we need this character to

* [14:45 - 14:47](https://www.youtube.com/watch?t=885&v=xUl-Agx2cLc)

run around and chase the player

* [14:47 - 14:49](https://www.youtube.com/watch?t=887&v=xUl-Agx2cLc)

so we're going to apply animation to this.

* [14:49 - 14:51](https://www.youtube.com/watch?t=889&v=xUl-Agx2cLc)

What we want to do is select the Animation

* [14:51 - 14:53](https://www.youtube.com/watch?t=891&v=xUl-Agx2cLc)

folder in the project panel.

* [14:53 - 14:56](https://www.youtube.com/watch?t=893&v=xUl-Agx2cLc)

I'm going to click the Create button and I'm going to choose

* [14:56 - 14:58](https://www.youtube.com/watch?t=896&v=xUl-Agx2cLc)

Animator Controller.

* [14:59 - 15:01](https://www.youtube.com/watch?t=899&v=xUl-Agx2cLc)

So select the Animation folder and choose

* [15:01 - 15:03](https://www.youtube.com/watch?t=901&v=xUl-Agx2cLc)

Create - Animator Controller.

* [15:03 - 15:06](https://www.youtube.com/watch?t=903&v=xUl-Agx2cLc)

This one is going to be EnemyAC.

* [15:06 - 15:08](https://www.youtube.com/watch?t=906&v=xUl-Agx2cLc)

AC is short for Animator Controller and

* [15:08 - 15:11](https://www.youtube.com/watch?t=908&v=xUl-Agx2cLc)

then we're going to assign this to our Zombunny.

* [15:13 - 15:16](https://www.youtube.com/watch?t=913&v=xUl-Agx2cLc)

The Zombunny, if we drag and drop that asset

* [15:16 - 15:18](https://www.youtube.com/watch?t=916&v=xUl-Agx2cLc)

on to it it will assign it for us,

* [15:18 - 15:20](https://www.youtube.com/watch?t=918&v=xUl-Agx2cLc)

but just to be clear what we're actually doing

* [15:20 - 15:22](https://www.youtube.com/watch?t=920&v=xUl-Agx2cLc)

is assigning this to the controller

* [15:22 - 15:24](https://www.youtube.com/watch?t=922&v=xUl-Agx2cLc)

property of the animator.

* [15:24 - 15:26](https://www.youtube.com/watch?t=924&v=xUl-Agx2cLc)

Either drag and drop to

* [15:26 - 15:28](https://www.youtube.com/watch?t=926&v=xUl-Agx2cLc)

that component or simply drag and drop

* [15:28 - 15:30](https://www.youtube.com/watch?t=928&v=xUl-Agx2cLc)

straight on to that object to

* [15:30 - 15:32](https://www.youtube.com/watch?t=930&v=xUl-Agx2cLc)

automatically assign it for you.

* [15:32 - 15:34](https://www.youtube.com/watch?t=932&v=xUl-Agx2cLc)

So when you select the Zombunny you should have

* [15:34 - 15:37](https://www.youtube.com/watch?t=934&v=xUl-Agx2cLc)

Animator - EnemyAC as the asset.

* [15:38 - 15:42](https://www.youtube.com/watch?t=938&v=xUl-Agx2cLc)

So that is a animator controller, a state machine,

* [15:42 - 15:44](https://www.youtube.com/watch?t=942&v=xUl-Agx2cLc)

so I'm going to double click EnemyAC

* [15:44 - 15:45](https://www.youtube.com/watch?t=944&v=xUl-Agx2cLc)

to open it in the animator window.

* [15:45 - 15:47](https://www.youtube.com/watch?t=945&v=xUl-Agx2cLc)

We should have an empty new state machine

* [15:47 - 15:49](https://www.youtube.com/watch?t=947&v=xUl-Agx2cLc)

to add animations to

* [15:49 - 15:51](https://www.youtube.com/watch?t=949&v=xUl-Agx2cLc)

just like we did with the player.

* [15:51 - 15:53](https://www.youtube.com/watch?t=951&v=xUl-Agx2cLc)

As before with the player the

* [15:53 - 15:55](https://www.youtube.com/watch?t=953&v=xUl-Agx2cLc)

animation for the Zombunny is

* [15:55 - 15:57](https://www.youtube.com/watch?t=955&v=xUl-Agx2cLc)

stored within it's model so I'm going to

* [15:57 - 16:00](https://www.youtube.com/watch?t=957&v=xUl-Agx2cLc)

expand the model and go to the Characters

* [16:00 - 16:01](https://www.youtube.com/watch?t=960&v=xUl-Agx2cLc)

folder in the project.

* [16:01 - 16:04](https://www.youtube.com/watch?t=961&v=xUl-Agx2cLc)

In the project panel open up Models

* [16:04 - 16:06](https://www.youtube.com/watch?t=964&v=xUl-Agx2cLc)

and select Character and then

* [16:06 - 16:09](https://www.youtube.com/watch?t=966&v=xUl-Agx2cLc)

expand the Zombunny and you will see

* [16:09 - 16:11](https://www.youtube.com/watch?t=969&v=xUl-Agx2cLc)

that and it's animations.

* [16:11 - 16:14](https://www.youtube.com/watch?t=971&v=xUl-Agx2cLc)

The Zombunny has Move, Idle and Death

* [16:14 - 16:16](https://www.youtube.com/watch?t=974&v=xUl-Agx2cLc)

and they are clips that are on a

* [16:16 - 16:18](https://www.youtube.com/watch?t=976&v=xUl-Agx2cLc)

particular point on the timeline.

* [16:18 - 16:19](https://www.youtube.com/watch?t=978&v=xUl-Agx2cLc)

You can see as I go between these clips

* [16:20 - 16:22](https://www.youtube.com/watch?t=980&v=xUl-Agx2cLc)

they are all in a different part of the timeline

* [16:22 - 16:23](https://www.youtube.com/watch?t=982&v=xUl-Agx2cLc)

as you can see from here.

* [16:23 - 16:25](https://www.youtube.com/watch?t=983&v=xUl-Agx2cLc)

The way that you can do that when you bring in an FPX

* [16:25 - 16:27](https://www.youtube.com/watch?t=985&v=xUl-Agx2cLc)

model that you've animated is you can just

* [16:27 - 16:29](https://www.youtube.com/watch?t=987&v=xUl-Agx2cLc)

create new clips and tell it what

* [16:29 - 16:31](https://www.youtube.com/watch?t=989&v=xUl-Agx2cLc)

frame range you animated them on

* [16:31 - 16:33](https://www.youtube.com/watch?t=991&v=xUl-Agx2cLc)

and Unity will import those for you

* [16:33 - 16:34](https://www.youtube.com/watch?t=993&v=xUl-Agx2cLc)

as different clips.

* [16:34 - 16:36](https://www.youtube.com/watch?t=994&v=xUl-Agx2cLc)

Just like the player they appear

* [16:36 - 16:38](https://www.youtube.com/watch?t=996&v=xUl-Agx2cLc)

underneath that in the hierarchy

* [16:38 - 16:40](https://www.youtube.com/watch?t=998&v=xUl-Agx2cLc)

so you have Death, Idle and Move.

* [16:40 - 16:42](https://www.youtube.com/watch?t=1000&v=xUl-Agx2cLc)

Just as before I'm going to drag them in.

* [16:42 - 16:44](https://www.youtube.com/watch?t=1002&v=xUl-Agx2cLc)

I want the default state to be Moving

* [16:44 - 16:46](https://www.youtube.com/watch?t=1004&v=xUl-Agx2cLc)

so I'm going to drag that one in first because

* [16:46 - 16:48](https://www.youtube.com/watch?t=1006&v=xUl-Agx2cLc)

that gets made default,

* [16:48 - 16:49](https://www.youtube.com/watch?t=1008&v=xUl-Agx2cLc)

default signified by orange.

* [16:49 - 16:51](https://www.youtube.com/watch?t=1009&v=xUl-Agx2cLc)

Then I'm going to drag in the other two,

* [16:52 - 16:54](https://www.youtube.com/watch?t=1012&v=xUl-Agx2cLc)

Idle and Death even.

* [16:54 - 16:56](https://www.youtube.com/watch?t=1014&v=xUl-Agx2cLc)

I'm going to put Death next to the Any state,

* [16:56 - 16:59](https://www.youtube.com/watch?t=1016&v=xUl-Agx2cLc)

and I'm going to put Idle and Move together.

* [17:00 - 17:02](https://www.youtube.com/watch?t=1020&v=xUl-Agx2cLc)

Again the position of these is kind of irrelevant but

* [17:02 - 17:05](https://www.youtube.com/watch?t=1022&v=xUl-Agx2cLc)

I like to have things nice and neat.

* [17:05 - 17:07](https://www.youtube.com/watch?t=1025&v=xUl-Agx2cLc)

Once those are in there we've positioned

* [17:07 - 17:09](https://www.youtube.com/watch?t=1027&v=xUl-Agx2cLc)

them nicely we're going to

* [17:09 - 17:11](https://www.youtube.com/watch?t=1029&v=xUl-Agx2cLc)

create parameters for them.

* [17:11 - 17:13](https://www.youtube.com/watch?t=1031&v=xUl-Agx2cLc)

So making sure that Move is the default,

* [17:13 - 17:16](https://www.youtube.com/watch?t=1033&v=xUl-Agx2cLc)

so Set As Default with right click

* [17:16 - 17:19](https://www.youtube.com/watch?t=1036&v=xUl-Agx2cLc)

if you haven't already, we're going to create parameters.

* [17:19 - 17:21](https://www.youtube.com/watch?t=1039&v=xUl-Agx2cLc)

We have just two parameters for this one

* [17:22 - 17:24](https://www.youtube.com/watch?t=1042&v=xUl-Agx2cLc)

and as before we're going to click the + icon

* [17:24 - 17:26](https://www.youtube.com/watch?t=1044&v=xUl-Agx2cLc)

and we're going to select the type

* [17:26 - 17:28](https://www.youtube.com/watch?t=1046&v=xUl-Agx2cLc)

of parameter that we want.

* [17:28 - 17:30](https://www.youtube.com/watch?t=1048&v=xUl-Agx2cLc)

We want

* [17:30 - 17:33](https://www.youtube.com/watch?t=1050&v=xUl-Agx2cLc)

a trigger parameter called PlayerDead.

* [17:33 - 17:35](https://www.youtube.com/watch?t=1053&v=xUl-Agx2cLc)

These enemy characters are going to walk,

* [17:35 - 17:37](https://www.youtube.com/watch?t=1055&v=xUl-Agx2cLc)

they're going to have their moving animation

* [17:37 - 17:39](https://www.youtube.com/watch?t=1057&v=xUl-Agx2cLc)

until the player dies and they are going to go

* [17:39 - 17:40](https://www.youtube.com/watch?t=1059&v=xUl-Agx2cLc)

in to their Idle animation.

* [17:40 - 17:43](https://www.youtube.com/watch?t=1060&v=xUl-Agx2cLc)

Then we're going to create another trigger

* [17:43 - 17:46](https://www.youtube.com/watch?t=1063&v=xUl-Agx2cLc)

which says that they themselves are dead,

* [17:46 - 17:48](https://www.youtube.com/watch?t=1066&v=xUl-Agx2cLc)

which is just called Dead.

* [17:48 - 17:50](https://www.youtube.com/watch?t=1068&v=xUl-Agx2cLc)

So two trigger parameters, PlayerDead

* [17:50 - 17:52](https://www.youtube.com/watch?t=1070&v=xUl-Agx2cLc)

so that they can go to Idle when you get killed

* [17:52 - 17:54](https://www.youtube.com/watch?t=1072&v=xUl-Agx2cLc)

and Dead themselves so that they can animate

* [17:54 - 17:56](https://www.youtube.com/watch?t=1074&v=xUl-Agx2cLc)

in to their Death animation.

* [17:56 - 17:58](https://www.youtube.com/watch?t=1076&v=xUl-Agx2cLc)

Then of course we need to actually control the

* [17:58 - 18:00](https://www.youtube.com/watch?t=1078&v=xUl-Agx2cLc)

logic of the state machine.

* [18:01 - 18:03](https://www.youtube.com/watch?t=1081&v=xUl-Agx2cLc)

We want our move to transition to Idle

* [18:03 - 18:06](https://www.youtube.com/watch?t=1083&v=xUl-Agx2cLc)

so I'm going to right click Make Transition

* [18:06 - 18:08](https://www.youtube.com/watch?t=1086&v=xUl-Agx2cLc)

and again I get the transition handle.

* [18:08 - 18:09](https://www.youtube.com/watch?t=1088&v=xUl-Agx2cLc)

I'm going to click on Idle to assign it.

* [18:09 - 18:11](https://www.youtube.com/watch?t=1089&v=xUl-Agx2cLc)

I will select

* [18:11 - 18:13](https://www.youtube.com/watch?t=1091&v=xUl-Agx2cLc)

the transition by clicking on it.

* [18:13 - 18:15](https://www.youtube.com/watch?t=1093&v=xUl-Agx2cLc)

Once that transition is highlighted in blue

* [18:16 - 18:18](https://www.youtube.com/watch?t=1096&v=xUl-Agx2cLc)

I should have my list of transitions.

* [18:18 - 18:20](https://www.youtube.com/watch?t=1098&v=xUl-Agx2cLc)

So in order to go from Move to Idle

* [18:20 - 18:22](https://www.youtube.com/watch?t=1100&v=xUl-Agx2cLc)

the condition is that

* [18:22 - 18:24](https://www.youtube.com/watch?t=1102&v=xUl-Agx2cLc)

the player is dead.

* [18:26 - 18:28](https://www.youtube.com/watch?t=1106&v=xUl-Agx2cLc)

Then very simply in order to go from

* [18:28 - 18:31](https://www.youtube.com/watch?t=1108&v=xUl-Agx2cLc)

the Any state I will make a transition,

* [18:31 - 18:32](https://www.youtube.com/watch?t=1111&v=xUl-Agx2cLc)

click on Death,

* [18:33 - 18:35](https://www.youtube.com/watch?t=1113&v=xUl-Agx2cLc)

select that transition.

* [18:37 - 18:39](https://www.youtube.com/watch?t=1117&v=xUl-Agx2cLc)

The condition for that is that the

* [18:39 - 18:41](https://www.youtube.com/watch?t=1119&v=xUl-Agx2cLc)

Dead trigger has occurred.

* [18:42 - 18:44](https://www.youtube.com/watch?t=1122&v=xUl-Agx2cLc)

So if I just scrub through you see we go from

* [18:44 - 18:46](https://www.youtube.com/watch?t=1124&v=xUl-Agx2cLc)

Moving in to Death.

* [18:48 - 18:51](https://www.youtube.com/watch?t=1128&v=xUl-Agx2cLc)

Also notice that you can't go from Idle back to Move.

* [18:51 - 18:53](https://www.youtube.com/watch?t=1131&v=xUl-Agx2cLc)

Because at that point the player is dead.

* [18:53 - 18:56](https://www.youtube.com/watch?t=1133&v=xUl-Agx2cLc)

So we have no need to create a transition back.

* [18:56 - 18:58](https://www.youtube.com/watch?t=1136&v=xUl-Agx2cLc)

These state machines don't work by themselves

* [18:58 - 19:00](https://www.youtube.com/watch?t=1138&v=xUl-Agx2cLc)

The connection between the state machine and

* [19:00 - 19:03](https://www.youtube.com/watch?t=1140&v=xUl-Agx2cLc)

animator and the actual functionality

* [19:03 - 19:05](https://www.youtube.com/watch?t=1143&v=xUl-Agx2cLc)

is that the scripting needs to tell those

* [19:05 - 19:07](https://www.youtube.com/watch?t=1145&v=xUl-Agx2cLc)

parameters what their value is.

* [19:07 - 19:10](https://www.youtube.com/watch?t=1147&v=xUl-Agx2cLc)

We need a script to say that the

* [19:10 - 19:13](https://www.youtube.com/watch?t=1150&v=xUl-Agx2cLc)

animator SetTrigger Player Dead will actually

* [19:13 - 19:17](https://www.youtube.com/watch?t=1153&v=xUl-Agx2cLc)

happen otherwise the animator does nothing by itself.

* [19:17 - 19:20](https://www.youtube.com/watch?t=1157&v=xUl-Agx2cLc)

In the Scripts folder in your project

* [19:20 - 19:23](https://www.youtube.com/watch?t=1160&v=xUl-Agx2cLc)

you will see a folder called Enemy.

* [19:23 - 19:26](https://www.youtube.com/watch?t=1163&v=xUl-Agx2cLc)

Go to Scripts folder and open the folder Enemy.

* [19:26 - 19:28](https://www.youtube.com/watch?t=1166&v=xUl-Agx2cLc)

In that you will see a folder called

* [19:28 - 19:29](https://www.youtube.com/watch?t=1168&v=xUl-Agx2cLc)

EnemyMovement.

* [19:29 - 19:31](https://www.youtube.com/watch?t=1169&v=xUl-Agx2cLc)

We are going to drag and drop that on to

* [19:31 - 19:34](https://www.youtube.com/watch?t=1171&v=xUl-Agx2cLc)

Zombunny in the hierarchy.

* [19:36 - 19:38](https://www.youtube.com/watch?t=1176&v=xUl-Agx2cLc)

And then once you've assigned it either

* [19:38 - 19:41](https://www.youtube.com/watch?t=1178&v=xUl-Agx2cLc)

double click EnemyMovement's icon

* [19:41 - 19:43](https://www.youtube.com/watch?t=1181&v=xUl-Agx2cLc)

or go to the cog icon

* [19:43 - 19:45](https://www.youtube.com/watch?t=1183&v=xUl-Agx2cLc)

and go to Edit Script, but basically we're opening

* [19:45 - 19:47](https://www.youtube.com/watch?t=1185&v=xUl-Agx2cLc)

that for editing.

* [19:47 - 19:50](https://www.youtube.com/watch?t=1187&v=xUl-Agx2cLc)

and when you open that for editing it should look like this.

* [19:51 - 19:53](https://www.youtube.com/watch?t=1191&v=xUl-Agx2cLc)

What you'll notice here is we have a script that's

* [19:53 - 19:54](https://www.youtube.com/watch?t=1193&v=xUl-Agx2cLc)

been ready written for you.

* [19:54 - 19:56](https://www.youtube.com/watch?t=1194&v=xUl-Agx2cLc)

Some of the functionality has been disabled,

* [19:56 - 19:58](https://www.youtube.com/watch?t=1196&v=xUl-Agx2cLc)

you'll notice the double forward slash

* [19:58 - 20:00](https://www.youtube.com/watch?t=1198&v=xUl-Agx2cLc)

symbols at the start of some of these lines.

* [20:00 - 20:02](https://www.youtube.com/watch?t=1200&v=xUl-Agx2cLc)

That's commenting, so you can write

* [20:02 - 20:04](https://www.youtube.com/watch?t=1202&v=xUl-Agx2cLc)

comments in a script, I.E. just notes

* [20:04 - 20:06](https://www.youtube.com/watch?t=1204&v=xUl-Agx2cLc)

to yourself or to coworkers, whatever,

* [20:06 - 20:08](https://www.youtube.com/watch?t=1206&v=xUl-Agx2cLc)

but you can also use that to turn

* [20:08 - 20:10](https://www.youtube.com/watch?t=1208&v=xUl-Agx2cLc)

functional lines of code in to deactivated

* [20:10 - 20:12](https://www.youtube.com/watch?t=1210&v=xUl-Agx2cLc)

lines of code, so that's what we've done here

* [20:12 - 20:14](https://www.youtube.com/watch?t=1212&v=xUl-Agx2cLc)

and we're going to come back to this script at some point

* [20:14 - 20:16](https://www.youtube.com/watch?t=1214&v=xUl-Agx2cLc)

and enable some of that functionality.

* [20:16 - 20:20](https://www.youtube.com/watch?t=1216&v=xUl-Agx2cLc)

But for now we're just going to explain how this script functions.

* [20:20 - 20:22](https://www.youtube.com/watch?t=1220&v=xUl-Agx2cLc)

This is our EnemyMovement script and at the very

* [20:22 - 20:24](https://www.youtube.com/watch?t=1222&v=xUl-Agx2cLc)

beginning we have this Transform player,

* [20:24 - 20:26](https://www.youtube.com/watch?t=1224&v=xUl-Agx2cLc)

and the Transform player is going to be

* [20:26 - 20:29](https://www.youtube.com/watch?t=1226&v=xUl-Agx2cLc)

what the enemy is going to move towards.

* [20:29 - 20:32](https://www.youtube.com/watch?t=1229&v=xUl-Agx2cLc)

You will notice the Transform player is not public.

* [20:32 - 20:34](https://www.youtube.com/watch?t=1232&v=xUl-Agx2cLc)

With the camera we had that public transform

* [20:34 - 20:36](https://www.youtube.com/watch?t=1234&v=xUl-Agx2cLc)

target so we could click and drag

* [20:36 - 20:38](https://www.youtube.com/watch?t=1236&v=xUl-Agx2cLc)

in the editor and the camera knows what it's following.

* [20:38 - 20:40](https://www.youtube.com/watch?t=1238&v=xUl-Agx2cLc)

However our enemies are

* [20:40 - 20:43](https://www.youtube.com/watch?t=1240&v=xUl-Agx2cLc)

not going to be in the game when the game starts.

* [20:43 - 20:45](https://www.youtube.com/watch?t=1243&v=xUl-Agx2cLc)

Our enemies are actually going to be what's called

* [20:45 - 20:47](https://www.youtube.com/watch?t=1245&v=xUl-Agx2cLc)

instantiated or spawned

* [20:47 - 20:49](https://www.youtube.com/watch?t=1247&v=xUl-Agx2cLc)

later so whole hordes of them can appear.

* [20:49 - 20:51](https://www.youtube.com/watch?t=1249&v=xUl-Agx2cLc)

As such we can't just click and drag

* [20:51 - 20:53](https://www.youtube.com/watch?t=1251&v=xUl-Agx2cLc)

the player on to them.

* [20:53 - 20:55](https://www.youtube.com/watch?t=1253&v=xUl-Agx2cLc)

So what's going to happen is they're going to have to find

* [20:55 - 20:57](https://www.youtube.com/watch?t=1255&v=xUl-Agx2cLc)

the player on their own, so for now

* [20:57 - 20:58](https://www.youtube.com/watch?t=1257&v=xUl-Agx2cLc)

that's just Transform player, not public.

* [20:58 - 21:01](https://www.youtube.com/watch?t=1258&v=xUl-Agx2cLc)

We also have a reference to a nav mesh agent,

* [21:01 - 21:03](https://www.youtube.com/watch?t=1261&v=xUl-Agx2cLc)

which is the component we put

* [21:03 - 21:06](https://www.youtube.com/watch?t=1263&v=xUl-Agx2cLc)

on the Zombunny previously, this is just our

* [21:06 - 21:08](https://www.youtube.com/watch?t=1266&v=xUl-Agx2cLc)

reference to it which we've called Nav.

* [21:08 - 21:10](https://www.youtube.com/watch?t=1268&v=xUl-Agx2cLc)

Now down in the Awake method here

* [21:10 - 21:13](https://www.youtube.com/watch?t=1270&v=xUl-Agx2cLc)

we are finding the player.

* [21:13 - 21:16](https://www.youtube.com/watch?t=1273&v=xUl-Agx2cLc)

So we have Player, which is that Transform before,

* [21:16 - 21:23](https://www.youtube.com/watch?t=1276&v=xUl-Agx2cLc)

player = GameObject.FindGameObjectWithTag.

* [21:23 - 21:25](https://www.youtube.com/watch?t=1283&v=xUl-Agx2cLc)

So if you remember previously when we were

* [21:25 - 21:27](https://www.youtube.com/watch?t=1285&v=xUl-Agx2cLc)

setting up the player we

* [21:27 - 21:29](https://www.youtube.com/watch?t=1287&v=xUl-Agx2cLc)

gave the player the tag Player.

* [21:29 - 21:31](https://www.youtube.com/watch?t=1289&v=xUl-Agx2cLc)

So now that we've set the player with the tag

* [21:31 - 21:33](https://www.youtube.com/watch?t=1291&v=xUl-Agx2cLc)

Player, we can find

* [21:33 - 21:34](https://www.youtube.com/watch?t=1293&v=xUl-Agx2cLc)

that player using this function.

* [21:34 - 21:36](https://www.youtube.com/watch?t=1294&v=xUl-Agx2cLc)

So basically what it's going to do is go through all of the game

* [21:36 - 21:40](https://www.youtube.com/watch?t=1296&v=xUl-Agx2cLc)

objects in our scene, it's going to say 'hey do you have that tag?'

* [21:40 - 21:43](https://www.youtube.com/watch?t=1300&v=xUl-Agx2cLc)

until it finds the one and it gives it back.

* [21:43 - 21:45](https://www.youtube.com/watch?t=1303&v=xUl-Agx2cLc)

And then what we're going to do is say

* [21:45 - 21:47](https://www.youtube.com/watch?t=1305&v=xUl-Agx2cLc)

.Transform, which is going to give us

* [21:47 - 21:49](https://www.youtube.com/watch?t=1307&v=xUl-Agx2cLc)

a reference to the transform,

* [21:49 - 21:51](https://www.youtube.com/watch?t=1309&v=xUl-Agx2cLc)

basically where the player is.

* [21:51 - 21:53](https://www.youtube.com/watch?t=1311&v=xUl-Agx2cLc)

So we're storing that in our variable named player.

* [21:53 - 21:55](https://www.youtube.com/watch?t=1313&v=xUl-Agx2cLc)

Next we have a variable named nav

* [21:55 - 21:57](https://www.youtube.com/watch?t=1315&v=xUl-Agx2cLc)

and we're just setting that equal to GetComponent

* [21:57 - 21:59](https://www.youtube.com/watch?t=1317&v=xUl-Agx2cLc)

which is basically going to

* [21:59 - 22:03](https://www.youtube.com/watch?t=1319&v=xUl-Agx2cLc)

pull a reference to the component we have in the editor.

* [22:03 - 22:05](https://www.youtube.com/watch?t=1323&v=xUl-Agx2cLc)

At this point we're just setting up.

* [22:05 - 22:07](https://www.youtube.com/watch?t=1325&v=xUl-Agx2cLc)

Then down in our update function

* [22:09 - 22:12](https://www.youtube.com/watch?t=1329&v=xUl-Agx2cLc)

you'll notice we're using update, not fixed update.

* [22:12 - 22:14](https://www.youtube.com/watch?t=1332&v=xUl-Agx2cLc)

As this is a nav mesh agent it's not

* [22:14 - 22:16](https://www.youtube.com/watch?t=1334&v=xUl-Agx2cLc)

keeping in time with physics

* [22:16 - 22:18](https://www.youtube.com/watch?t=1336&v=xUl-Agx2cLc)

so we're just going to use the regular update

* [22:18 - 22:20](https://www.youtube.com/watch?t=1338&v=xUl-Agx2cLc)

and inside there we are going to say

* [22:20 - 22:23](https://www.youtube.com/watch?t=1340&v=xUl-Agx2cLc)

nav.SetDestination (player.position); and that's it.

* [22:23 - 22:25](https://www.youtube.com/watch?t=1343&v=xUl-Agx2cLc)

So nav being the nav mesh agent we're saying

* [22:25 - 22:28](https://www.youtube.com/watch?t=1345&v=xUl-Agx2cLc)

'hey, that's where I want to go'.

* [22:28 - 22:29](https://www.youtube.com/watch?t=1348&v=xUl-Agx2cLc)

'I want to go towards the player'

* [22:29 - 22:32](https://www.youtube.com/watch?t=1349&v=xUl-Agx2cLc)

and that's it, the nav mesh agent goes

* [22:32 - 22:33](https://www.youtube.com/watch?t=1352&v=xUl-Agx2cLc)

'cool, I'm going to head towards the player'.

* [22:33 - 22:35](https://www.youtube.com/watch?t=1353&v=xUl-Agx2cLc)

And the nice thing about doing it this way is that

* [22:35 - 22:37](https://www.youtube.com/watch?t=1355&v=xUl-Agx2cLc)

the enemies aren't going to bump in to each other,

* [22:37 - 22:39](https://www.youtube.com/watch?t=1357&v=xUl-Agx2cLc)

they're not going to crop in and out of each other,

* [22:39 - 22:41](https://www.youtube.com/watch?t=1359&v=xUl-Agx2cLc)

they're going to move around all the creepy

* [22:41 - 22:43](https://www.youtube.com/watch?t=1361&v=xUl-Agx2cLc)

baby arms and Legos and

* [22:43 - 22:45](https://www.youtube.com/watch?t=1363&v=xUl-Agx2cLc)

weirdness that we have in the scene there and

* [22:45 - 22:47](https://www.youtube.com/watch?t=1365&v=xUl-Agx2cLc)

they're going to viciously and unerringly

* [22:47 - 22:50](https://www.youtube.com/watch?t=1367&v=xUl-Agx2cLc)

attack you with extreme prejudice and violence.

* [22:50 - 22:52](https://www.youtube.com/watch?t=1370&v=xUl-Agx2cLc)

The nav mesh agent makes it very easy to do these things.

* [22:52 - 22:54](https://www.youtube.com/watch?t=1372&v=xUl-Agx2cLc)

And that's the whole script.

* [22:54 - 22:56](https://www.youtube.com/watch?t=1374&v=xUl-Agx2cLc)

We'll revisit this script later when we want to

* [22:56 - 22:58](https://www.youtube.com/watch?t=1376&v=xUl-Agx2cLc)

do uncomment it, re-add in that

* [22:58 - 23:01](https://www.youtube.com/watch?t=1378&v=xUl-Agx2cLc)

functionality that you see is currently greyed out.

* [23:01 - 23:03](https://www.youtube.com/watch?t=1381&v=xUl-Agx2cLc)

We could switch back to the Unity editor

* [23:03 - 23:05](https://www.youtube.com/watch?t=1383&v=xUl-Agx2cLc)

right now, we don't need to save anything because

* [23:05 - 23:07](https://www.youtube.com/watch?t=1385&v=xUl-Agx2cLc)

we haven't actually edited it,

* [23:07 - 23:10](https://www.youtube.com/watch?t=1387&v=xUl-Agx2cLc)

but I do want to make sure you have applied it to Player.

* [23:10 - 23:12](https://www.youtube.com/watch?t=1390&v=xUl-Agx2cLc)

So the Zombunny in the hierarchy should

* [23:12 - 23:15](https://www.youtube.com/watch?t=1392&v=xUl-Agx2cLc)

have the enemy movement script attached to it.

* [23:17 - 23:19](https://www.youtube.com/watch?t=1397&v=xUl-Agx2cLc)

I'm going to save my scene

* [23:19 - 23:21](https://www.youtube.com/watch?t=1399&v=xUl-Agx2cLc)

and I'm going to press Play to test

* [23:21 - 23:23](https://www.youtube.com/watch?t=1401&v=xUl-Agx2cLc)

my game, when you press Play it now

* [23:23 - 23:25](https://www.youtube.com/watch?t=1403&v=xUl-Agx2cLc)

follows the player.

* [23:25 - 23:27](https://www.youtube.com/watch?t=1405&v=xUl-Agx2cLc)

We don't have any coding for attacking

* [23:27 - 23:29](https://www.youtube.com/watch?t=1407&v=xUl-Agx2cLc)

yes or anything like that

* [23:29 - 23:31](https://www.youtube.com/watch?t=1409&v=xUl-Agx2cLc)

so it's not doing to do any harm to you,

* [23:31 - 23:34](https://www.youtube.com/watch?t=1411&v=xUl-Agx2cLc)

you can walk around and push him around.

* [23:40 - 23:43](https://www.youtube.com/watch?t=1420&v=xUl-Agx2cLc)

That is the end of phase 4.

# Phase 5

* The next thing we're going to jump in to is
* [00:01 - 00:03](https://www.youtube.com/watch?t=1&v=kp4SyYHAwcA)

the new UI system

* [00:03 - 00:05](https://www.youtube.com/watch?t=3&v=kp4SyYHAwcA)

and the first thing that we're going to do

* [00:05 - 00:08](https://www.youtube.com/watch?t=5&v=kp4SyYHAwcA)

is to click the 2D mode,

* [00:08 - 00:10](https://www.youtube.com/watch?t=8&v=kp4SyYHAwcA)

so in Unity 4.3 we introduced some

* [00:10 - 00:12](https://www.youtube.com/watch?t=10&v=kp4SyYHAwcA)

2D features and they're also useful

* [00:12 - 00:14](https://www.youtube.com/watch?t=12&v=kp4SyYHAwcA)

for the GUI.

* [00:14 - 00:16](https://www.youtube.com/watch?t=14&v=kp4SyYHAwcA)

So in the scene view there is a little

* [00:16 - 00:18](https://www.youtube.com/watch?t=16&v=kp4SyYHAwcA)

box here called 2D, so if you enable

* [00:18 - 00:20](https://www.youtube.com/watch?t=18&v=kp4SyYHAwcA)

that you will see that the scene view switches

* [00:20 - 00:23](https://www.youtube.com/watch?t=20&v=kp4SyYHAwcA)

to a completely flat representation

* [00:23 - 00:25](https://www.youtube.com/watch?t=23&v=kp4SyYHAwcA)

and that the gizmo in the upper right disappears.

* [00:25 - 00:27](https://www.youtube.com/watch?t=25&v=kp4SyYHAwcA)

It looks like this.

* [00:28 - 00:30](https://www.youtube.com/watch?t=28&v=kp4SyYHAwcA)

What we're going to do is create a canvas.

* [00:30 - 00:32](https://www.youtube.com/watch?t=30&v=kp4SyYHAwcA)

So the way that the new UI system works

* [00:32 - 00:36](https://www.youtube.com/watch?t=32&v=kp4SyYHAwcA)

is that everything is based off of a canvas.

* [00:36 - 00:38](https://www.youtube.com/watch?t=36&v=kp4SyYHAwcA)

So if you go to Game Object

* [00:38 - 00:40](https://www.youtube.com/watch?t=38&v=kp4SyYHAwcA)

you can go to UI and

* [00:40 - 00:42](https://www.youtube.com/watch?t=40&v=kp4SyYHAwcA)

create a Canvas.

* [00:42 - 00:46](https://www.youtube.com/watch?t=42&v=kp4SyYHAwcA)

Game Object - UI - Canvas from the top menu.

* [00:47 - 00:49](https://www.youtube.com/watch?t=47&v=kp4SyYHAwcA)

And we will rename this object

* [00:49 - 00:53](https://www.youtube.com/watch?t=49&v=kp4SyYHAwcA)

from Canvas to HUD Canvas

* [00:53 - 00:55](https://www.youtube.com/watch?t=53&v=kp4SyYHAwcA)

HUD Canvas.

* [00:56 - 00:58](https://www.youtube.com/watch?t=56&v=kp4SyYHAwcA)

Just to give you a little bit of background information

* [00:58 - 01:00](https://www.youtube.com/watch?t=58&v=kp4SyYHAwcA)

the UI system is based around

* [01:00 - 01:04](https://www.youtube.com/watch?t=60&v=kp4SyYHAwcA)

the concept of a rect transform.

* [01:04 - 01:07](https://www.youtube.com/watch?t=64&v=kp4SyYHAwcA)

So rect, short for rectangle, has a number of ways of

* [01:07 - 01:09](https://www.youtube.com/watch?t=67&v=kp4SyYHAwcA)

displaying a rectangle on the screen

* [01:09 - 01:12](https://www.youtube.com/watch?t=69&v=kp4SyYHAwcA)

and every child object, every UI element is

* [01:12 - 01:15](https://www.youtube.com/watch?t=72&v=kp4SyYHAwcA)

based off of the parent object's rect transform.

* [01:15 - 01:17](https://www.youtube.com/watch?t=75&v=kp4SyYHAwcA)

So in the case of a canvas

* [01:17 - 01:19](https://www.youtube.com/watch?t=77&v=kp4SyYHAwcA)

you'll see that in a particular mode

* [01:19 - 01:21](https://www.youtube.com/watch?t=79&v=kp4SyYHAwcA)

such as Screen Space Overlay

* [01:21 - 01:24](https://www.youtube.com/watch?t=81&v=kp4SyYHAwcA)

the rect transform's values are being

* [01:24 - 01:26](https://www.youtube.com/watch?t=84&v=kp4SyYHAwcA)

driven by the game view.

* [01:26 - 01:28](https://www.youtube.com/watch?t=86&v=kp4SyYHAwcA)

So the first thing that I'm going to do is

* [01:28 - 01:31](https://www.youtube.com/watch?t=88&v=kp4SyYHAwcA)

to select my HUD Canvas in the hierarchy

* [01:31 - 01:32](https://www.youtube.com/watch?t=91&v=kp4SyYHAwcA)

and I'm going to frame-select it

* [01:32 - 01:35](https://www.youtube.com/watch?t=92&v=kp4SyYHAwcA)

so if you hover over the scene view and press F

* [01:35 - 01:38](https://www.youtube.com/watch?t=95&v=kp4SyYHAwcA)

you will see an outline of this canvas.

* [01:39 - 01:40](https://www.youtube.com/watch?t=99&v=kp4SyYHAwcA)

so that's driven by the game view.

* [01:40 - 01:42](https://www.youtube.com/watch?t=100&v=kp4SyYHAwcA)

You can see if i drag the game view

* [01:42 - 01:45](https://www.youtube.com/watch?t=102&v=kp4SyYHAwcA)

the actual shape of that is changing.

* [01:47 - 01:49](https://www.youtube.com/watch?t=107&v=kp4SyYHAwcA)

That HUD Canvas is going to have all

* [01:49 - 01:51](https://www.youtube.com/watch?t=109&v=kp4SyYHAwcA)

of our child elements attached to it

* [01:51 - 01:53](https://www.youtube.com/watch?t=111&v=kp4SyYHAwcA)

and it's going to stay to the scale of the screen

* [01:53 - 01:55](https://www.youtube.com/watch?t=113&v=kp4SyYHAwcA)

so if you're working for different resolutions it's

* [01:55 - 01:56](https://www.youtube.com/watch?t=115&v=kp4SyYHAwcA)

going to still stay full screen.

* [01:56 - 01:58](https://www.youtube.com/watch?t=116&v=kp4SyYHAwcA)

It's driven by this canvas component.

* [01:58 - 02:00](https://www.youtube.com/watch?t=118&v=kp4SyYHAwcA)

Canvas has 3 modes

* [02:00 - 02:01](https://www.youtube.com/watch?t=120&v=kp4SyYHAwcA)

Screen Space Overlay,

* [02:01 - 02:03](https://www.youtube.com/watch?t=121&v=kp4SyYHAwcA)

which is just filling the entire screen.

* [02:03 - 02:04](https://www.youtube.com/watch?t=123&v=kp4SyYHAwcA)

Screen Space Camera,

* [02:04 - 02:07](https://www.youtube.com/watch?t=124&v=kp4SyYHAwcA)

which can have UI perspective

* [02:07 - 02:09](https://www.youtube.com/watch?t=127&v=kp4SyYHAwcA)

and World Space, which is for things that

* [02:09 - 02:11](https://www.youtube.com/watch?t=129&v=kp4SyYHAwcA)

are intrinsically within the 3D scene.

* [02:11 - 02:13](https://www.youtube.com/watch?t=131&v=kp4SyYHAwcA)

So for example you might have a speech bubble

* [02:13 - 02:15](https://www.youtube.com/watch?t=133&v=kp4SyYHAwcA)

popping up from a 3D character.

* [02:15 - 02:17](https://www.youtube.com/watch?t=135&v=kp4SyYHAwcA)

We're going to stick with Screen Space Overlay

* [02:17 - 02:18](https://www.youtube.com/watch?t=137&v=kp4SyYHAwcA)

so we don't need to worry about that.

* [02:18 - 02:20](https://www.youtube.com/watch?t=138&v=kp4SyYHAwcA)

Pixel Perfect can be used to make

* [02:20 - 02:22](https://www.youtube.com/watch?t=140&v=kp4SyYHAwcA)

sure that all of your graphic elements are

* [02:22 - 02:25](https://www.youtube.com/watch?t=142&v=kp4SyYHAwcA)

pixel perfect, but we don't need it for what we're doing here.

* [02:25 - 02:29](https://www.youtube.com/watch?t=145&v=kp4SyYHAwcA)

Graphic Raycaster we don't need to concern

* [02:29 - 02:30](https://www.youtube.com/watch?t=149&v=kp4SyYHAwcA)

ourselves with at all.

* [02:30 - 02:32](https://www.youtube.com/watch?t=150&v=kp4SyYHAwcA)

What we do want to do is to add

* [02:32 - 02:34](https://www.youtube.com/watch?t=152&v=kp4SyYHAwcA)

a component, before we do anything else,

* [02:34 - 02:36](https://www.youtube.com/watch?t=154&v=kp4SyYHAwcA)

which is a canvas group.

* [02:36 - 02:39](https://www.youtube.com/watch?t=156&v=kp4SyYHAwcA)

So what a canvas group does is allows UI elements

* [02:39 - 02:42](https://www.youtube.com/watch?t=159&v=kp4SyYHAwcA)

to have an alpha and it allows you to

* [02:42 - 02:44](https://www.youtube.com/watch?t=162&v=kp4SyYHAwcA)

toggle whether they are interactables.

* [02:44 - 02:47](https://www.youtube.com/watch?t=164&v=kp4SyYHAwcA)

So for our entire UI we don't actually

* [02:47 - 02:49](https://www.youtube.com/watch?t=167&v=kp4SyYHAwcA)

want interaction, so we don't want to put in

* [02:49 - 02:50](https://www.youtube.com/watch?t=169&v=kp4SyYHAwcA)

buttons or anything like that.

* [02:50 - 02:52](https://www.youtube.com/watch?t=170&v=kp4SyYHAwcA)

We're going to be putting in elements that would

* [02:52 - 02:55](https://www.youtube.com/watch?t=172&v=kp4SyYHAwcA)

be interactable but we can cancel them out

* [02:55 - 02:57](https://www.youtube.com/watch?t=175&v=kp4SyYHAwcA)

by on the canvas group removing that.

* [02:57 - 03:00](https://www.youtube.com/watch?t=177&v=kp4SyYHAwcA)

Also, because we use a raycast from screen space

* [03:00 - 03:03](https://www.youtube.com/watch?t=180&v=kp4SyYHAwcA)

to the quad in order to control the character

* [03:03 - 03:05](https://www.youtube.com/watch?t=183&v=kp4SyYHAwcA)

we don't want this canvas, which is going to be

* [03:05 - 03:07](https://www.youtube.com/watch?t=185&v=kp4SyYHAwcA)

effectively rendered in front of everything to

* [03:07 - 03:09](https://www.youtube.com/watch?t=187&v=kp4SyYHAwcA)

block that raycast.

* [03:09 - 03:11](https://www.youtube.com/watch?t=189&v=kp4SyYHAwcA)

On your canvas group, interactable, and block raycast

* [03:11 - 03:13](https://www.youtube.com/watch?t=191&v=kp4SyYHAwcA)

should be unchecked.

* [03:14 - 03:17](https://www.youtube.com/watch?t=194&v=kp4SyYHAwcA)

Real quick too, obviously the canvas is very big

* [03:17 - 03:21](https://www.youtube.com/watch?t=197&v=kp4SyYHAwcA)

and I just wanted to clarify it's so big because

* [03:21 - 03:24](https://www.youtube.com/watch?t=201&v=kp4SyYHAwcA)

it maps 1 pixel per unit, world unit

* [03:24 - 03:28](https://www.youtube.com/watch?t=204&v=kp4SyYHAwcA)

so that we get the highest level of fidelity in our graphics.

* [03:28 - 03:30](https://www.youtube.com/watch?t=208&v=kp4SyYHAwcA)

So if you have a graphic that is

* [03:30 - 03:33](https://www.youtube.com/watch?t=210&v=kp4SyYHAwcA)

512 pixels by 512 pixels

* [03:33 - 03:38](https://www.youtube.com/watch?t=213&v=kp4SyYHAwcA)

it's going to be drawn 512 units by 512 units.

* [03:38 - 03:40](https://www.youtube.com/watch?t=218&v=kp4SyYHAwcA)

And if you recall the capsule collider on our character

* [03:40 - 03:42](https://www.youtube.com/watch?t=220&v=kp4SyYHAwcA)

is 0.6 units wide

* [03:42 - 03:46](https://www.youtube.com/watch?t=222&v=kp4SyYHAwcA)

so 512 units is very very big.

* [03:46 - 03:48](https://www.youtube.com/watch?t=226&v=kp4SyYHAwcA)

So that's why you're seeing the canvas display

* [03:48 - 03:50](https://www.youtube.com/watch?t=228&v=kp4SyYHAwcA)

huge in here and then the level looking tiny

* [03:50 - 03:53](https://www.youtube.com/watch?t=230&v=kp4SyYHAwcA)

down in the corner, it's nothing to worry about whatsoever.

* [03:53 - 03:55](https://www.youtube.com/watch?t=233&v=kp4SyYHAwcA)

One trick that I don't want you guys to do

* [03:55 - 03:57](https://www.youtube.com/watch?t=235&v=kp4SyYHAwcA)

right now because it can lead to confusion

* [03:57 - 03:59](https://www.youtube.com/watch?t=237&v=kp4SyYHAwcA)

is that you can use layers to disable this

* [03:59 - 04:01](https://www.youtube.com/watch?t=239&v=kp4SyYHAwcA)

so all new UI elements are automatically put on

* [04:01 - 04:03](https://www.youtube.com/watch?t=241&v=kp4SyYHAwcA)

the UI layer and what you can do is

* [04:03 - 04:05](https://www.youtube.com/watch?t=243&v=kp4SyYHAwcA)

just choose Nothing and then UI

* [04:05 - 04:07](https://www.youtube.com/watch?t=245&v=kp4SyYHAwcA)

to only show the UI.

* [04:07 - 04:10](https://www.youtube.com/watch?t=247&v=kp4SyYHAwcA)

But we don't want to do that, we're just going to work it

* [04:10 - 04:11](https://www.youtube.com/watch?t=250&v=kp4SyYHAwcA)

it out as it is like that.

* [04:11 - 04:13](https://www.youtube.com/watch?t=251&v=kp4SyYHAwcA)

Okay, so the first thing we want to do is get

* [04:13 - 04:15](https://www.youtube.com/watch?t=253&v=kp4SyYHAwcA)

a HUD element in to this so we're going

* [04:15 - 04:17](https://www.youtube.com/watch?t=255&v=kp4SyYHAwcA)

to create an empty child.

* [04:17 - 04:19](https://www.youtube.com/watch?t=257&v=kp4SyYHAwcA)

There's another way of doing this, so I want to

* [04:19 - 04:21](https://www.youtube.com/watch?t=259&v=kp4SyYHAwcA)

basically give you an example of each way

* [04:21 - 04:23](https://www.youtube.com/watch?t=261&v=kp4SyYHAwcA)

of doing certain things.

* [04:23 - 04:25](https://www.youtube.com/watch?t=263&v=kp4SyYHAwcA)

We can select HUD Canvas and

* [04:25 - 04:27](https://www.youtube.com/watch?t=265&v=kp4SyYHAwcA)

from the top go Game Object and Add things.

* [04:27 - 04:30](https://www.youtube.com/watch?t=267&v=kp4SyYHAwcA)

We can go to the Create menu here, which now has

* [04:30 - 04:33](https://www.youtube.com/watch?t=270&v=kp4SyYHAwcA)

Create Empty and Empty Child as of 4.6.

* [04:33 - 04:35](https://www.youtube.com/watch?t=273&v=kp4SyYHAwcA)

But we can also right click on a game object

* [04:35 - 04:38](https://www.youtube.com/watch?t=275&v=kp4SyYHAwcA)

we want to create an empty child for.

* [04:38 - 04:41](https://www.youtube.com/watch?t=278&v=kp4SyYHAwcA)

So I'm going to right click and go to Create Empty Child.

* [04:41 - 04:43](https://www.youtube.com/watch?t=281&v=kp4SyYHAwcA)

And I'm going to rename this game object

* [04:43 - 04:45](https://www.youtube.com/watch?t=283&v=kp4SyYHAwcA)

HealthUI

* [04:45 - 04:47](https://www.youtube.com/watch?t=285&v=kp4SyYHAwcA)

Capital H, capital UI.

* [04:47 - 04:50](https://www.youtube.com/watch?t=287&v=kp4SyYHAwcA)

Now the advantage of adding a child directly

* [04:50 - 04:52](https://www.youtube.com/watch?t=290&v=kp4SyYHAwcA)

to this rather than making it separately

* [04:52 - 04:54](https://www.youtube.com/watch?t=292&v=kp4SyYHAwcA)

and adding it is that because we selected

* [04:54 - 04:56](https://www.youtube.com/watch?t=294&v=kp4SyYHAwcA)

that HUD Canvas first Unity

* [04:56 - 04:58](https://www.youtube.com/watch?t=296&v=kp4SyYHAwcA)

knows that we're trying to add another UI element

* [04:58 - 05:00](https://www.youtube.com/watch?t=298&v=kp4SyYHAwcA)

so instead of the standard transform component

* [05:00 - 05:02](https://www.youtube.com/watch?t=300&v=kp4SyYHAwcA)

that it adds to any new game object

* [05:02 - 05:04](https://www.youtube.com/watch?t=302&v=kp4SyYHAwcA)

it's adding a rect transform.

* [05:04 - 05:06](https://www.youtube.com/watch?t=304&v=kp4SyYHAwcA)

And you can see that you have a slightly different

* [05:06 - 05:08](https://www.youtube.com/watch?t=306&v=kp4SyYHAwcA)

looking component than you're used to.

* [05:08 - 05:10](https://www.youtube.com/watch?t=308&v=kp4SyYHAwcA)

Just to draw your attention to something else

* [05:10 - 05:12](https://www.youtube.com/watch?t=310&v=kp4SyYHAwcA)

to do with UI.

* [05:12 - 05:15](https://www.youtube.com/watch?t=312&v=kp4SyYHAwcA)

This is our new empty game object, this square in the middle.

* [05:16 - 05:18](https://www.youtube.com/watch?t=316&v=kp4SyYHAwcA)

We also have up at the top a brand new

* [05:18 - 05:20](https://www.youtube.com/watch?t=318&v=kp4SyYHAwcA)

tool, the fifth one there,

* [05:20 - 05:22](https://www.youtube.com/watch?t=320&v=kp4SyYHAwcA)

which is our Rect tool.

* [05:22 - 05:24](https://www.youtube.com/watch?t=322&v=kp4SyYHAwcA)

And you can use that to scale

* [05:24 - 05:26](https://www.youtube.com/watch?t=324&v=kp4SyYHAwcA)

things, you can use it rotate,

* [05:27 - 05:29](https://www.youtube.com/watch?t=327&v=kp4SyYHAwcA)

and you'll also notice that when you drag these things around

* [05:29 - 05:31](https://www.youtube.com/watch?t=329&v=kp4SyYHAwcA)

we have snapping

* [05:31 - 05:33](https://www.youtube.com/watch?t=331&v=kp4SyYHAwcA)

and we have these mysterious looking

* [05:33 - 05:35](https://www.youtube.com/watch?t=333&v=kp4SyYHAwcA)

triangles in the centre.

* [05:35 - 05:37](https://www.youtube.com/watch?t=335&v=kp4SyYHAwcA)

Those are our anchor points and

* [05:37 - 05:39](https://www.youtube.com/watch?t=337&v=kp4SyYHAwcA)

they're a very powerful way to

* [05:39 - 05:41](https://www.youtube.com/watch?t=339&v=kp4SyYHAwcA)

position your different UI elements

* [05:41 - 05:43](https://www.youtube.com/watch?t=341&v=kp4SyYHAwcA)

and we're going to show off how you use

* [05:43 - 05:45](https://www.youtube.com/watch?t=343&v=kp4SyYHAwcA)

some of those throughout the day.

* [05:45 - 05:47](https://www.youtube.com/watch?t=345&v=kp4SyYHAwcA)

The first thing we want to do is to

* [05:47 - 05:49](https://www.youtube.com/watch?t=347&v=kp4SyYHAwcA)

setup our Health UI in the

* [05:49 - 05:50](https://www.youtube.com/watch?t=349&v=kp4SyYHAwcA)

lower left of the screen.

* [05:50 - 05:52](https://www.youtube.com/watch?t=350&v=kp4SyYHAwcA)

There's a button which may not immediately

* [05:52 - 05:55](https://www.youtube.com/watch?t=352&v=kp4SyYHAwcA)

appear to be a button, on the rect transform.

* [05:55 - 05:57](https://www.youtube.com/watch?t=355&v=kp4SyYHAwcA)

It's called the Anchor Presets button.

* [05:58 - 06:00](https://www.youtube.com/watch?t=358&v=kp4SyYHAwcA)

And what it does is give you all these

* [06:00 - 06:02](https://www.youtube.com/watch?t=360&v=kp4SyYHAwcA)

presets and a couple of different modes

* [06:02 - 06:04](https://www.youtube.com/watch?t=362&v=kp4SyYHAwcA)

using Alt and Shift

* [06:04 - 06:06](https://www.youtube.com/watch?t=364&v=kp4SyYHAwcA)

in order to be able to lay things out.

* [06:06 - 06:08](https://www.youtube.com/watch?t=366&v=kp4SyYHAwcA)

So the rect transform's position is based

* [06:08 - 06:10](https://www.youtube.com/watch?t=368&v=kp4SyYHAwcA)

off a number of different factors and when you're in

* [06:10 - 06:12](https://www.youtube.com/watch?t=370&v=kp4SyYHAwcA)

different modes and have your position

* [06:12 - 06:14](https://www.youtube.com/watch?t=372&v=kp4SyYHAwcA)

in different places the actual

* [06:14 - 06:16](https://www.youtube.com/watch?t=374&v=kp4SyYHAwcA)

properties that you're getting, the position,

* [06:16 - 06:18](https://www.youtube.com/watch?t=376&v=kp4SyYHAwcA)

X, Y, X, the width and height,

* [06:18 - 06:20](https://www.youtube.com/watch?t=378&v=kp4SyYHAwcA)

will be different depending on how things are anchored

* [06:20 - 06:25](https://www.youtube.com/watch?t=380&v=kp4SyYHAwcA)

i.e. where those particular anchors are positioned.

* [06:25 - 06:27](https://www.youtube.com/watch?t=385&v=kp4SyYHAwcA)

So when they're all positioned together

* [06:27 - 06:29](https://www.youtube.com/watch?t=387&v=kp4SyYHAwcA)

so for example if I move this

* [06:29 - 06:31](https://www.youtube.com/watch?t=389&v=kp4SyYHAwcA)

and move my anchor to the top right

* [06:32 - 06:34](https://www.youtube.com/watch?t=392&v=kp4SyYHAwcA)

then my position is relative to

* [06:34 - 06:36](https://www.youtube.com/watch?t=394&v=kp4SyYHAwcA)

where those anchors are.

* [06:36 - 06:38](https://www.youtube.com/watch?t=396&v=kp4SyYHAwcA)

So as I drag my canvas in

* [06:38 - 06:40](https://www.youtube.com/watch?t=398&v=kp4SyYHAwcA)

you can see that that stays with the righthand edge.

* [06:41 - 06:43](https://www.youtube.com/watch?t=401&v=kp4SyYHAwcA)

So it's all based around this thing

* [06:43 - 06:45](https://www.youtube.com/watch?t=403&v=kp4SyYHAwcA)

but we're going to use some of the presets for this

* [06:45 - 06:47](https://www.youtube.com/watch?t=405&v=kp4SyYHAwcA)

to make it a little simpler.

* [06:47 - 06:49](https://www.youtube.com/watch?t=407&v=kp4SyYHAwcA)

What I want you to do is with the rect

* [06:49 - 06:51](https://www.youtube.com/watch?t=409&v=kp4SyYHAwcA)

transform button open,

* [06:51 - 06:53](https://www.youtube.com/watch?t=411&v=kp4SyYHAwcA)

hopefully you can see this menu,

* [06:53 - 06:55](https://www.youtube.com/watch?t=413&v=kp4SyYHAwcA)

we're going to, first off we're going to hold Alt

* [06:56 - 06:58](https://www.youtube.com/watch?t=416&v=kp4SyYHAwcA)

because Alt is also going to set the position

* [06:58 - 07:00](https://www.youtube.com/watch?t=418&v=kp4SyYHAwcA)

whilst moving the anchors for us

* [07:00 - 07:02](https://www.youtube.com/watch?t=420&v=kp4SyYHAwcA)

and we're also going to hold Shift.

* [07:02 - 07:04](https://www.youtube.com/watch?t=422&v=kp4SyYHAwcA)

And then we're going to click on the

* [07:04 - 07:05](https://www.youtube.com/watch?t=424&v=kp4SyYHAwcA)

lower left preset.

* [07:05 - 07:07](https://www.youtube.com/watch?t=425&v=kp4SyYHAwcA)

So you can see they've got titles here.

* [07:07 - 07:09](https://www.youtube.com/watch?t=427&v=kp4SyYHAwcA)

We've got Bottom and Left.

* [07:09 - 07:11](https://www.youtube.com/watch?t=429&v=kp4SyYHAwcA)

We're going to click there with Alt and Shift.

* [07:11 - 07:13](https://www.youtube.com/watch?t=431&v=kp4SyYHAwcA)

So you see if I hold Alt it moves the box.

* [07:13 - 07:15](https://www.youtube.com/watch?t=433&v=kp4SyYHAwcA)

If I hold Shift it highlights the blue

* [07:15 - 07:16](https://www.youtube.com/watch?t=435&v=kp4SyYHAwcA)

circle, which is our pivot.

* [07:17 - 07:19](https://www.youtube.com/watch?t=437&v=kp4SyYHAwcA)

And we click there.

* [07:19 - 07:21](https://www.youtube.com/watch?t=439&v=kp4SyYHAwcA)

If you have trouble remembering that it also says it

* [07:21 - 07:23](https://www.youtube.com/watch?t=441&v=kp4SyYHAwcA)

right at the top, Shift sets the pivot,

* [07:23 - 07:25](https://www.youtube.com/watch?t=443&v=kp4SyYHAwcA)

Alt sets the position.

* [07:25 - 07:27](https://www.youtube.com/watch?t=445&v=kp4SyYHAwcA)

So then what you should see is that

* [07:27 - 07:29](https://www.youtube.com/watch?t=447&v=kp4SyYHAwcA)

in you scene view that

* [07:29 - 07:31](https://www.youtube.com/watch?t=449&v=kp4SyYHAwcA)

you have something in the lower left,

* [07:31 - 07:32](https://www.youtube.com/watch?t=451&v=kp4SyYHAwcA)

it looks like this.

* [07:32 - 07:34](https://www.youtube.com/watch?t=452&v=kp4SyYHAwcA)

Then I'm going to go ahead and set the

* [07:34 - 07:36](https://www.youtube.com/watch?t=454&v=kp4SyYHAwcA)

width to 75

* [07:36 - 07:40](https://www.youtube.com/watch?t=456&v=kp4SyYHAwcA)

and I'm going to set the height to 60.

* [07:44 - 07:46](https://www.youtube.com/watch?t=464&v=kp4SyYHAwcA)

So the next thing I'm going to do is add those

* [07:46 - 07:49](https://www.youtube.com/watch?t=466&v=kp4SyYHAwcA)

child elements, this heart icon and the slider.

* [07:49 - 07:51](https://www.youtube.com/watch?t=469&v=kp4SyYHAwcA)

I'm going to again want to add something

* [07:51 - 07:53](https://www.youtube.com/watch?t=471&v=kp4SyYHAwcA)

directly as a child, so I'm going to right click

* [07:53 - 07:56](https://www.youtube.com/watch?t=473&v=kp4SyYHAwcA)

HealthUI this time, go to UI

* [07:56 - 07:57](https://www.youtube.com/watch?t=476&v=kp4SyYHAwcA)

and choose Image.

* [07:57 - 07:59](https://www.youtube.com/watch?t=477&v=kp4SyYHAwcA)

So UI Image is exactly what it sounds like.

* [07:59 - 08:01](https://www.youtube.com/watch?t=479&v=kp4SyYHAwcA)

It's any way to get a texture or sprite

* [08:01 - 08:03](https://www.youtube.com/watch?t=481&v=kp4SyYHAwcA)

as we call it in imported form

* [08:03 - 08:05](https://www.youtube.com/watch?t=483&v=kp4SyYHAwcA)

in to your UI layout.

* [08:07 - 08:09](https://www.youtube.com/watch?t=487&v=kp4SyYHAwcA)

Once we've added this rename it

* [08:09 - 08:11](https://www.youtube.com/watch?t=489&v=kp4SyYHAwcA)

from Image to Heart.

* [08:12 - 08:14](https://www.youtube.com/watch?t=492&v=kp4SyYHAwcA)

Then in the rect transform

* [08:15 - 08:17](https://www.youtube.com/watch?t=495&v=kp4SyYHAwcA)

we are going to set the X

* [08:17 - 08:20](https://www.youtube.com/watch?t=497&v=kp4SyYHAwcA)

and Y positions, if they're not already, to 0,

* [08:20 - 08:22](https://www.youtube.com/watch?t=500&v=kp4SyYHAwcA)

and I'm going to set my width and height

* [08:22 - 08:24](https://www.youtube.com/watch?t=502&v=kp4SyYHAwcA)

to 30.

* [08:26 - 08:28](https://www.youtube.com/watch?t=506&v=kp4SyYHAwcA)

What you should see is a white

* [08:28 - 08:30](https://www.youtube.com/watch?t=508&v=kp4SyYHAwcA)

square in the lower left of your screens.

* [08:31 - 08:33](https://www.youtube.com/watch?t=511&v=kp4SyYHAwcA)

You should have your

* [08:33 - 08:35](https://www.youtube.com/watch?t=513&v=kp4SyYHAwcA)

HealthUI parent object and you should have your

* [08:35 - 08:37](https://www.youtube.com/watch?t=515&v=kp4SyYHAwcA)

Heart, which is a white square right now.

* [08:37 - 08:39](https://www.youtube.com/watch?t=517&v=kp4SyYHAwcA)

So when you add an image in the new system

* [08:39 - 08:41](https://www.youtube.com/watch?t=519&v=kp4SyYHAwcA)

until you give it a source image it has

* [08:41 - 08:44](https://www.youtube.com/watch?t=521&v=kp4SyYHAwcA)

a white background, so it falls back to using

* [08:44 - 08:45](https://www.youtube.com/watch?t=524&v=kp4SyYHAwcA)

it's colour property.

* [08:45 - 08:47](https://www.youtube.com/watch?t=525&v=kp4SyYHAwcA)

So that's just a really handy way to see

* [08:47 - 08:49](https://www.youtube.com/watch?t=527&v=kp4SyYHAwcA)

where the outline of the thing's going to be and if

* [08:49 - 08:51](https://www.youtube.com/watch?t=529&v=kp4SyYHAwcA)

you didn't want to see it at all you can always turn down

* [08:51 - 08:54](https://www.youtube.com/watch?t=531&v=kp4SyYHAwcA)

the alpha value, the opacity of the image.

* [08:54 - 08:56](https://www.youtube.com/watch?t=534&v=kp4SyYHAwcA)

But we do have an image for it, so we are going to,

* [08:56 - 08:58](https://www.youtube.com/watch?t=536&v=kp4SyYHAwcA)

on the image component,

* [08:58 - 09:02](https://www.youtube.com/watch?t=538&v=kp4SyYHAwcA)

use the circle select to look in to our Assets

* [09:02 - 09:04](https://www.youtube.com/watch?t=542&v=kp4SyYHAwcA)

and choose Heart.

* [09:04 - 09:07](https://www.youtube.com/watch?t=544&v=kp4SyYHAwcA)

Click the circle select to the right of Source Image

* [09:07 - 09:09](https://www.youtube.com/watch?t=547&v=kp4SyYHAwcA)

and choose Heart from the assets.

* [09:09 - 09:11](https://www.youtube.com/watch?t=549&v=kp4SyYHAwcA)

I'm sure you all are noticing

* [09:11 - 09:13](https://www.youtube.com/watch?t=551&v=kp4SyYHAwcA)

that the heart and the white box and everything are actually

* [09:13 - 09:15](https://www.youtube.com/watch?t=553&v=kp4SyYHAwcA)

appearing in the lower left hand corner

* [09:15 - 09:17](https://www.youtube.com/watch?t=555&v=kp4SyYHAwcA)

in your game view,

* [09:17 - 09:19](https://www.youtube.com/watch?t=557&v=kp4SyYHAwcA)

so it's very easy to set things up because

* [09:19 - 09:22](https://www.youtube.com/watch?t=559&v=kp4SyYHAwcA)

you can see what it will look like in the final project.

* [09:22 - 09:24](https://www.youtube.com/watch?t=562&v=kp4SyYHAwcA)

The next thing we're going to do is add in

* [09:24 - 09:26](https://www.youtube.com/watch?t=564&v=kp4SyYHAwcA)

a slider for our UI.

* [09:26 - 09:28](https://www.youtube.com/watch?t=566&v=kp4SyYHAwcA)

So we have the heart and next to it we want to have

* [09:28 - 09:31](https://www.youtube.com/watch?t=568&v=kp4SyYHAwcA)

the amount of health displayed to the user.

* [09:31 - 09:33](https://www.youtube.com/watch?t=571&v=kp4SyYHAwcA)

I'm going to reselect my HealthUI

* [09:33 - 09:35](https://www.youtube.com/watch?t=573&v=kp4SyYHAwcA)

because I want to create a child of that.

* [09:36 - 09:38](https://www.youtube.com/watch?t=576&v=kp4SyYHAwcA)

I'm going to right click,

* [09:38 - 09:40](https://www.youtube.com/watch?t=578&v=kp4SyYHAwcA)

do the same again, UI

* [09:41 - 09:44](https://www.youtube.com/watch?t=581&v=kp4SyYHAwcA)

and this time we're going to choose Slider.

* [09:46 - 09:48](https://www.youtube.com/watch?t=586&v=kp4SyYHAwcA)

And we're going to rename this first of all

* [09:48 - 09:50](https://www.youtube.com/watch?t=588&v=kp4SyYHAwcA)

to HealthSlider.

* [09:50 - 09:52](https://www.youtube.com/watch?t=590&v=kp4SyYHAwcA)

F2 on PC, Return on Mac.

* [09:52 - 09:55](https://www.youtube.com/watch?t=592&v=kp4SyYHAwcA)

HealthSlider, capital H and S.

* [09:59 - 10:01](https://www.youtube.com/watch?t=599&v=kp4SyYHAwcA)

Then I'm going to set the X position

* [10:01 - 10:04](https://www.youtube.com/watch?t=601&v=kp4SyYHAwcA)

in the rect transform to 95

* [10:04 - 10:07](https://www.youtube.com/watch?t=604&v=kp4SyYHAwcA)

ensuring that Y and Z are 0.

* [10:09 - 10:12](https://www.youtube.com/watch?t=609&v=kp4SyYHAwcA)

So what this is effectively is a slider,

* [10:12 - 10:13](https://www.youtube.com/watch?t=612&v=kp4SyYHAwcA)

so you can use this for a number of different things,

* [10:13 - 10:15](https://www.youtube.com/watch?t=613&v=kp4SyYHAwcA)

if you have settings in a game,

* [10:15 - 10:17](https://www.youtube.com/watch?t=615&v=kp4SyYHAwcA)

you might want people to drag a slider and set something.

* [10:17 - 10:19](https://www.youtube.com/watch?t=617&v=kp4SyYHAwcA)

We're using it slightly differently, we're using it in

* [10:19 - 10:21](https://www.youtube.com/watch?t=619&v=kp4SyYHAwcA)

a non-interactable manner.

* [10:21 - 10:25](https://www.youtube.com/watch?t=621&v=kp4SyYHAwcA)

And basically we don't need to worry about the handle.

* [10:25 - 10:27](https://www.youtube.com/watch?t=625&v=kp4SyYHAwcA)

So what I want you guys to do

* [10:27 - 10:29](https://www.youtube.com/watch?t=627&v=kp4SyYHAwcA)

is to open up HealthSlider to see the

* [10:29 - 10:32](https://www.youtube.com/watch?t=629&v=kp4SyYHAwcA)

child object's that are standard within a slider.

* [10:32 - 10:36](https://www.youtube.com/watch?t=632&v=kp4SyYHAwcA)

You'll see that we have Fill Area and Handle Slide Area.

* [10:36 - 10:40](https://www.youtube.com/watch?t=636&v=kp4SyYHAwcA)

The Fill Area is in charge of the background

* [10:40 - 10:41](https://www.youtube.com/watch?t=640&v=kp4SyYHAwcA)

and the fill itself.

* [10:41 - 10:45](https://www.youtube.com/watch?t=641&v=kp4SyYHAwcA)

So the main space that you've got to fill

* [10:45 - 10:47](https://www.youtube.com/watch?t=645&v=kp4SyYHAwcA)

and what's going to be behind it.

* [10:47 - 10:50](https://www.youtube.com/watch?t=647&v=kp4SyYHAwcA)

We don't want the Handle Slide Area at all

* [10:50 - 10:52](https://www.youtube.com/watch?t=650&v=kp4SyYHAwcA)

so we're going to remove that from the hierarchy.

* [10:52 - 10:56](https://www.youtube.com/watch?t=652&v=kp4SyYHAwcA)

Leaving the Fill Area select Handle Slide Area

* [10:56 - 10:59](https://www.youtube.com/watch?t=656&v=kp4SyYHAwcA)

and to delete something, if you're on a PC, delete key,

* [10:59 - 11:01](https://www.youtube.com/watch?t=659&v=kp4SyYHAwcA)

on Mac Command-Backspace

* [11:01 - 11:03](https://www.youtube.com/watch?t=661&v=kp4SyYHAwcA)

will remove it from the hierarchy.

* [11:03 - 11:05](https://www.youtube.com/watch?t=663&v=kp4SyYHAwcA)

You should then lose the handle in the game view

* [11:05 - 11:07](https://www.youtube.com/watch?t=665&v=kp4SyYHAwcA)

and scene view and just be left with the actual

* [11:07 - 11:09](https://www.youtube.com/watch?t=667&v=kp4SyYHAwcA)

slider space itself.

* [11:10 - 11:12](https://www.youtube.com/watch?t=670&v=kp4SyYHAwcA)

So we want to setup what this actually does.

* [11:12 - 11:14](https://www.youtube.com/watch?t=672&v=kp4SyYHAwcA)

The first thing we're going to do is look at our

* [11:14 - 11:16](https://www.youtube.com/watch?t=674&v=kp4SyYHAwcA)

slider component.

* [11:16 - 11:18](https://www.youtube.com/watch?t=676&v=kp4SyYHAwcA)

So the slider component is basically all of the different

* [11:18 - 11:20](https://www.youtube.com/watch?t=678&v=kp4SyYHAwcA)

rules about what it's going to do.

* [11:20 - 11:23](https://www.youtube.com/watch?t=680&v=kp4SyYHAwcA)

It has an interactable checkbox, we know that we don't

* [11:23 - 11:25](https://www.youtube.com/watch?t=683&v=kp4SyYHAwcA)

want to actually have any interaction here

* [11:25 - 11:27](https://www.youtube.com/watch?t=685&v=kp4SyYHAwcA)

but because we've placed this under the canvas

* [11:27 - 11:29](https://www.youtube.com/watch?t=687&v=kp4SyYHAwcA)

which itself isn't interactable

* [11:29 - 11:32](https://www.youtube.com/watch?t=689&v=kp4SyYHAwcA)

we don't need to worry about the sub-assets

* [11:32 - 11:35](https://www.youtube.com/watch?t=692&v=kp4SyYHAwcA)

having interactable checkboxes.

* [11:35 - 11:37](https://www.youtube.com/watch?t=695&v=kp4SyYHAwcA)

We don't need to go through and check all of those,

* [11:37 - 11:39](https://www.youtube.com/watch?t=697&v=kp4SyYHAwcA)

the canvas being the parent is handling

* [11:39 - 11:40](https://www.youtube.com/watch?t=699&v=kp4SyYHAwcA)

all of that for us.

* [11:40 - 11:42](https://www.youtube.com/watch?t=700&v=kp4SyYHAwcA)

Because it is something that

* [11:42 - 11:45](https://www.youtube.com/watch?t=702&v=kp4SyYHAwcA)

you can interact with as standard we have a transition.

* [11:45 - 11:47](https://www.youtube.com/watch?t=705&v=kp4SyYHAwcA)

We don't want any of that either so we're going to

* [11:47 - 11:49](https://www.youtube.com/watch?t=707&v=kp4SyYHAwcA)

select Transition - None.

* [11:50 - 11:52](https://www.youtube.com/watch?t=710&v=kp4SyYHAwcA)

Then we want the Max value of this

* [11:52 - 11:56](https://www.youtube.com/watch?t=712&v=kp4SyYHAwcA)

to be equal to the Starting Health effectively,

* [11:56 - 11:59](https://www.youtube.com/watch?t=716&v=kp4SyYHAwcA)

so I'm going to set the max value to 100.

* [11:59 - 12:02](https://www.youtube.com/watch?t=719&v=kp4SyYHAwcA)

Then I'm going to change the value also to 100.

* [12:03 - 12:05](https://www.youtube.com/watch?t=723&v=kp4SyYHAwcA)

If you look at the game view when I adjusted

* [12:05 - 12:07](https://www.youtube.com/watch?t=725&v=kp4SyYHAwcA)

the slider you can see that that is

* [12:07 - 12:09](https://www.youtube.com/watch?t=727&v=kp4SyYHAwcA)

the value that we're getting.

* [12:09 - 12:11](https://www.youtube.com/watch?t=729&v=kp4SyYHAwcA)

So when I set that to 100 I know that

* [12:11 - 12:13](https://www.youtube.com/watch?t=731&v=kp4SyYHAwcA)

I can write some scripting that addresses this

* [12:13 - 12:15](https://www.youtube.com/watch?t=733&v=kp4SyYHAwcA)

slider and decreases that each time we

* [12:15 - 12:17](https://www.youtube.com/watch?t=735&v=kp4SyYHAwcA)

get hurt by an enemy.

* [12:17 - 12:19](https://www.youtube.com/watch?t=737&v=kp4SyYHAwcA)

Then what we're going to do is to have

* [12:19 - 12:21](https://www.youtube.com/watch?t=739&v=kp4SyYHAwcA)

some kind of visual feedback

* [12:21 - 12:23](https://www.youtube.com/watch?t=741&v=kp4SyYHAwcA)

when you do actually get hurt.

* [12:23 - 12:25](https://www.youtube.com/watch?t=743&v=kp4SyYHAwcA)

Because that slider in the lower left is kind of small

* [12:25 - 12:27](https://www.youtube.com/watch?t=745&v=kp4SyYHAwcA)

we want to have the screen flash

* [12:27 - 12:29](https://www.youtube.com/watch?t=747&v=kp4SyYHAwcA)

like it would in a real game

* [12:29 - 12:31](https://www.youtube.com/watch?t=749&v=kp4SyYHAwcA)

every time you get hurt.

* [12:31 - 12:34](https://www.youtube.com/watch?t=751&v=kp4SyYHAwcA)

So we can do that using a UI image as well,

* [12:34 - 12:36](https://www.youtube.com/watch?t=754&v=kp4SyYHAwcA)

So what we're going to do is to go back

* [12:36 - 12:38](https://www.youtube.com/watch?t=756&v=kp4SyYHAwcA)

to our HealthUI.

* [12:38 - 12:40](https://www.youtube.com/watch?t=758&v=kp4SyYHAwcA)

Reselect HealthUI.

* [12:40 - 12:43](https://www.youtube.com/watch?t=760&v=kp4SyYHAwcA)

Right click, this time I'm going to add

* [12:43 - 12:45](https://www.youtube.com/watch?t=763&v=kp4SyYHAwcA)

another UI image.

* [12:47 - 12:50](https://www.youtube.com/watch?t=767&v=kp4SyYHAwcA)

We're going to rename this DamageImage.

* [12:53 - 12:55](https://www.youtube.com/watch?t=773&v=kp4SyYHAwcA)

And because it's a brand new image

* [12:55 - 12:57](https://www.youtube.com/watch?t=775&v=kp4SyYHAwcA)

that's just kind of sat on the lower left right now

* [12:57 - 12:59](https://www.youtube.com/watch?t=777&v=kp4SyYHAwcA)

we want this to be over the entire screen

* [12:59 - 13:01](https://www.youtube.com/watch?t=779&v=kp4SyYHAwcA)

so the entire screen can kind of flash red

* [13:01 - 13:02](https://www.youtube.com/watch?t=781&v=kp4SyYHAwcA)

each time you get hurt.

* [13:02 - 13:04](https://www.youtube.com/watch?t=782&v=kp4SyYHAwcA)

So there's a very quick way with the anchor presets

* [13:04 - 13:07](https://www.youtube.com/watch?t=784&v=kp4SyYHAwcA)

yet again to stretch this over the entire screen.

* [13:08 - 13:10](https://www.youtube.com/watch?t=788&v=kp4SyYHAwcA)

So here's what I want you guys to do.

* [13:10 - 13:13](https://www.youtube.com/watch?t=790&v=kp4SyYHAwcA)

Is to select DamageImage, drag it up

* [13:13 - 13:15](https://www.youtube.com/watch?t=793&v=kp4SyYHAwcA)

and drop it on to HUDCanvas,

* [13:15 - 13:18](https://www.youtube.com/watch?t=795&v=kp4SyYHAwcA)

which will make it a child of HUDCanvas instead.

* [13:18 - 13:20](https://www.youtube.com/watch?t=798&v=kp4SyYHAwcA)

Then we can collapse HealthUI.

* [13:22 - 13:24](https://www.youtube.com/watch?t=802&v=kp4SyYHAwcA)

Once you have made it a child of HUDCanvas

* [13:24 - 13:26](https://www.youtube.com/watch?t=804&v=kp4SyYHAwcA)

you can then go ahead and select

* [13:26 - 13:30](https://www.youtube.com/watch?t=806&v=kp4SyYHAwcA)

and then Alt-click on the lower right anchor preset

* [13:30 - 13:32](https://www.youtube.com/watch?t=810&v=kp4SyYHAwcA)

as I'm showing you right now.

* [13:32 - 13:34](https://www.youtube.com/watch?t=812&v=kp4SyYHAwcA)

Alt-click there, and you should have then

* [13:34 - 13:36](https://www.youtube.com/watch?t=814&v=kp4SyYHAwcA)

white covering your entire canvas.

* [13:38 - 13:40](https://www.youtube.com/watch?t=818&v=kp4SyYHAwcA)

And then the final thing we need to do is

* [13:40 - 13:42](https://www.youtube.com/watch?t=820&v=kp4SyYHAwcA)

set the alpha to 0 for this.

* [13:42 - 13:44](https://www.youtube.com/watch?t=822&v=kp4SyYHAwcA)

So we're going to worry about the colour in our

* [13:44 - 13:46](https://www.youtube.com/watch?t=824&v=kp4SyYHAwcA)

scripting later so don't worry about that now.

* [13:46 - 13:48](https://www.youtube.com/watch?t=826&v=kp4SyYHAwcA)

But to set the alpha to 0 we just click

* [13:48 - 13:50](https://www.youtube.com/watch?t=828&v=kp4SyYHAwcA)

the colour block and then drag the

* [13:50 - 13:53](https://www.youtube.com/watch?t=830&v=kp4SyYHAwcA)

A for alpha down to 0.

* [13:55 - 13:57](https://www.youtube.com/watch?t=835&v=kp4SyYHAwcA)

Obviously if you have done that please do

* [13:57 - 14:00](https://www.youtube.com/watch?t=837&v=kp4SyYHAwcA)

save your scene, very important

# Phase 6

* The next thing we're going to do is look in to
* [00:03 - 00:05](https://www.youtube.com/watch?t=3&v=a916_lhps04)

player health, so obviously we just created a slider

* [00:05 - 00:06](https://www.youtube.com/watch?t=5&v=a916_lhps04)

to represent the health,

* [00:06 - 00:08](https://www.youtube.com/watch?t=6&v=a916_lhps04)

we now want to actually implement that.

* [00:08 - 00:10](https://www.youtube.com/watch?t=8&v=a916_lhps04)

So we have this HealthUI

* [00:10 - 00:13](https://www.youtube.com/watch?t=10&v=a916_lhps04)

and the next component to this game

* [00:13 - 00:15](https://www.youtube.com/watch?t=13&v=a916_lhps04)

that we want to have is we want to

* [00:15 - 00:17](https://www.youtube.com/watch?t=15&v=a916_lhps04)

have the player have health

* [00:17 - 00:19](https://www.youtube.com/watch?t=17&v=a916_lhps04)

that is able to be taken away and is able to

* [00:19 - 00:21](https://www.youtube.com/watch?t=19&v=a916_lhps04)

also interact with our UI that we just created.

* [00:21 - 00:23](https://www.youtube.com/watch?t=21&v=a916_lhps04)

We also want to have the enemy have

* [00:23 - 00:25](https://www.youtube.com/watch?t=23&v=a916_lhps04)

the ability to attack the player and thus

* [00:25 - 00:27](https://www.youtube.com/watch?t=25&v=a916_lhps04)

take that health away.

* [00:27 - 00:30](https://www.youtube.com/watch?t=27&v=a916_lhps04)

And then from there we're going to reverse the roles,

* [00:30 - 00:32](https://www.youtube.com/watch?t=30&v=a916_lhps04)

we're going to give the enemy some health and give the player

* [00:32 - 00:33](https://www.youtube.com/watch?t=32&v=a916_lhps04)

the ability to take that health away.

* [00:34 - 00:36](https://www.youtube.com/watch?t=34&v=a916_lhps04)

What we're going to do to start is we're going to go

* [00:36 - 00:38](https://www.youtube.com/watch?t=36&v=a916_lhps04)

to the Scripts folder and we're going to

* [00:38 - 00:40](https://www.youtube.com/watch?t=38&v=a916_lhps04)

locate the Player folder and

* [00:40 - 00:43](https://www.youtube.com/watch?t=40&v=a916_lhps04)

we should find a script called PlayerHealth.

* [00:44 - 00:46](https://www.youtube.com/watch?t=44&v=a916_lhps04)

So we're going to take that and we're going to click

* [00:46 - 00:49](https://www.youtube.com/watch?t=46&v=a916_lhps04)

and drag that on to the Player game object

* [00:49 - 00:51](https://www.youtube.com/watch?t=49&v=a916_lhps04)

in our hierarchy.

* [00:51 - 00:53](https://www.youtube.com/watch?t=51&v=a916_lhps04)

So we will drop there and if we click on the player,

* [00:53 - 00:55](https://www.youtube.com/watch?t=53&v=a916_lhps04)

we scroll down and we should see

* [00:55 - 00:57](https://www.youtube.com/watch?t=55&v=a916_lhps04)

Player Health Script as a component.

* [00:57 - 00:59](https://www.youtube.com/watch?t=57&v=a916_lhps04)

Also we are currently still in this

* [00:59 - 01:01](https://www.youtube.com/watch?t=59&v=a916_lhps04)

view where we're really zoomed out and we're

* [01:01 - 01:04](https://www.youtube.com/watch?t=61&v=a916_lhps04)

focused on the canvas and all that stuff

* [01:04 - 01:06](https://www.youtube.com/watch?t=64&v=a916_lhps04)

so why don't we take a second, we'll come out of 2D

* [01:06 - 01:09](https://www.youtube.com/watch?t=66&v=a916_lhps04)

view here again by clicking on the 2D button

* [01:09 - 01:11](https://www.youtube.com/watch?t=69&v=a916_lhps04)

right there, bringing us out of that 2D mode

* [01:11 - 01:14](https://www.youtube.com/watch?t=71&v=a916_lhps04)

and then if we want to get to the player quickly

* [01:14 - 01:16](https://www.youtube.com/watch?t=74&v=a916_lhps04)

we can just double click on the player's name in the hierarchy

* [01:16 - 01:18](https://www.youtube.com/watch?t=76&v=a916_lhps04)

it'll zoom us right in there.

* [01:18 - 01:21](https://www.youtube.com/watch?t=78&v=a916_lhps04)

It just brings us back to where we were previously

* [01:21 - 01:23](https://www.youtube.com/watch?t=81&v=a916_lhps04)

We now have the PlayerHealth script on the player

* [01:23 - 01:25](https://www.youtube.com/watch?t=83&v=a916_lhps04)

so we're going to open it up and take a look at it

* [01:25 - 01:27](https://www.youtube.com/watch?t=85&v=a916_lhps04)

before we do be sure to save your scene.

* [01:28 - 01:30](https://www.youtube.com/watch?t=88&v=a916_lhps04)

And let's go ahead and pop this open.

* [01:31 - 01:32](https://www.youtube.com/watch?t=91&v=a916_lhps04)

Alright, player health.

* [01:32 - 01:34](https://www.youtube.com/watch?t=92&v=a916_lhps04)

So we start off with our PlayerHealth with a whole

* [01:34 - 01:36](https://www.youtube.com/watch?t=94&v=a916_lhps04)

bunch of variables so let's just step through and

* [01:36 - 01:38](https://www.youtube.com/watch?t=96&v=a916_lhps04)

see what each of these are.

* [01:38 - 01:40](https://www.youtube.com/watch?t=98&v=a916_lhps04)

So the first variable here is our startingHealth,

* [01:40 - 01:42](https://www.youtube.com/watch?t=100&v=a916_lhps04)

which is a public integer which dictates

* [01:42 - 01:44](https://www.youtube.com/watch?t=102&v=a916_lhps04)

how much health the player has

* [01:44 - 01:46](https://www.youtube.com/watch?t=104&v=a916_lhps04)

when the level first starts.

* [01:46 - 01:48](https://www.youtube.com/watch?t=106&v=a916_lhps04)

Next we have an integer for currentHealth

* [01:48 - 01:50](https://www.youtube.com/watch?t=108&v=a916_lhps04)

which is how much health a player will have

* [01:50 - 01:53](https://www.youtube.com/watch?t=110&v=a916_lhps04)

after they've been damaged or just at any given point in the game.

* [01:53 - 01:55](https://www.youtube.com/watch?t=113&v=a916_lhps04)

We have this healthSlider which

* [01:55 - 01:57](https://www.youtube.com/watch?t=115&v=a916_lhps04)

is a slider game object

* [01:57 - 02:00](https://www.youtube.com/watch?t=117&v=a916_lhps04)

which is the reference to that slider UI element

* [02:00 - 02:01](https://www.youtube.com/watch?t=120&v=a916_lhps04)

that we created earlier.

* [02:01 - 02:04](https://www.youtube.com/watch?t=121&v=a916_lhps04)

Now a good note right here, we're accessing Slider,

* [02:04 - 02:06](https://www.youtube.com/watch?t=124&v=a916_lhps04)

which is the new UI.

* [02:06 - 02:08](https://www.youtube.com/watch?t=126&v=a916_lhps04)

In order to access this we need to

* [02:08 - 02:11](https://www.youtube.com/watch?t=128&v=a916_lhps04)

include using UnityEngine.uI.

* [02:11 - 02:13](https://www.youtube.com/watch?t=131&v=a916_lhps04)

If you don't have that line of code at the top

* [02:13 - 02:15](https://www.youtube.com/watch?t=133&v=a916_lhps04)

using UnityEngine.uI

* [02:15 - 02:17](https://www.youtube.com/watch?t=135&v=a916_lhps04)

you're not going to be able to use text, images, sliders

* [02:17 - 02:19](https://www.youtube.com/watch?t=137&v=a916_lhps04)

any of the new UI components.

* [02:19 - 02:21](https://www.youtube.com/watch?t=139&v=a916_lhps04)

So just keep in mind you have to have that.

* [02:21 - 02:23](https://www.youtube.com/watch?t=141&v=a916_lhps04)

After the slider we then have a

* [02:23 - 02:25](https://www.youtube.com/watch?t=143&v=a916_lhps04)

public Image damageImage,

* [02:25 - 02:27](https://www.youtube.com/watch?t=145&v=a916_lhps04)

which is again a reference to that damage image

* [02:27 - 02:28](https://www.youtube.com/watch?t=147&v=a916_lhps04)

item we created.

* [02:28 - 02:30](https://www.youtube.com/watch?t=148&v=a916_lhps04)

We have an audio which is our death clip.

* [02:30 - 02:32](https://www.youtube.com/watch?t=150&v=a916_lhps04)

So unlike our hurt clip the death clip

* [02:32 - 02:35](https://www.youtube.com/watch?t=152&v=a916_lhps04)

is going to be what's called a one-shot audio

* [02:35 - 02:36](https://www.youtube.com/watch?t=155&v=a916_lhps04)

where we basically are saying we're not going to play

* [02:36 - 02:38](https://www.youtube.com/watch?t=156&v=a916_lhps04)

the hurt sound any more, this is the sound the player makes

* [02:38 - 02:39](https://www.youtube.com/watch?t=158&v=a916_lhps04)

when the player loses the game.

* [02:39 - 02:42](https://www.youtube.com/watch?t=159&v=a916_lhps04)

We have a public float flashSpeed which is how

* [02:42 - 02:44](https://www.youtube.com/watch?t=162&v=a916_lhps04)

quickly the damaged image

* [02:44 - 02:46](https://www.youtube.com/watch?t=164&v=a916_lhps04)

flashes up on the screen.

* [02:46 - 02:48](https://www.youtube.com/watch?t=166&v=a916_lhps04)

And then we have flashColour which we have

* [02:48 - 02:52](https://www.youtube.com/watch?t=168&v=a916_lhps04)

set to (1f, 0f, 0f, 0.1f) which means

* [02:52 - 02:54](https://www.youtube.com/watch?t=172&v=a916_lhps04)

completely red and a tenth

* [02:54 - 02:55](https://www.youtube.com/watch?t=174&v=a916_lhps04)

of the way completely opaque.

* [02:55 - 02:57](https://www.youtube.com/watch?t=175&v=a916_lhps04)

So it's mostly transparent and red.

* [02:58 - 03:00](https://www.youtube.com/watch?t=178&v=a916_lhps04)

Next we have some private variables, the first

* [03:00 - 03:03](https://www.youtube.com/watch?t=180&v=a916_lhps04)

is animator anim which again a reference

* [03:03 - 03:05](https://www.youtube.com/watch?t=183&v=a916_lhps04)

to our animator components.

* [03:05 - 03:07](https://www.youtube.com/watch?t=185&v=a916_lhps04)

We have a reference to our audio sources which

* [03:07 - 03:09](https://www.youtube.com/watch?t=187&v=a916_lhps04)

we call payerAudio.

* [03:09 - 03:11](https://www.youtube.com/watch?t=189&v=a916_lhps04)

We have a reference to the playerMovement scripts

* [03:11 - 03:13](https://www.youtube.com/watch?t=191&v=a916_lhps04)

So this is the first time we've seen this.

* [03:13 - 03:16](https://www.youtube.com/watch?t=193&v=a916_lhps04)

We've created a reference to another script

* [03:16 - 03:17](https://www.youtube.com/watch?t=196&v=a916_lhps04)

that we've already written.

* [03:17 - 03:20](https://www.youtube.com/watch?t=197&v=a916_lhps04)

We all remember writing PlayerMovement earlier today

* [03:20 - 03:22](https://www.youtube.com/watch?t=200&v=a916_lhps04)

so now we are actually getting a reference to that

* [03:22 - 03:24](https://www.youtube.com/watch?t=202&v=a916_lhps04)

script that is on the Player

* [03:24 - 03:26](https://www.youtube.com/watch?t=204&v=a916_lhps04)

so that we can prevent the player from

* [03:26 - 03:28](https://www.youtube.com/watch?t=206&v=a916_lhps04)

running around once the player is dead.

* [03:28 - 03:30](https://www.youtube.com/watch?t=208&v=a916_lhps04)

We have to have a reference to it to do that so

* [03:30 - 03:32](https://www.youtube.com/watch?t=210&v=a916_lhps04)

you're seeing some script interactivity there.

* [03:32 - 03:35](https://www.youtube.com/watch?t=212&v=a916_lhps04)

We have 2 boolean values, one is isDead,

* [03:35 - 03:37](https://www.youtube.com/watch?t=215&v=a916_lhps04)

which will determine whether or not the player is dead.

* [03:37 - 03:39](https://www.youtube.com/watch?t=217&v=a916_lhps04)

And the other is damaged, which will allow us

* [03:39 - 03:41](https://www.youtube.com/watch?t=219&v=a916_lhps04)

to know whether or not the player has taken damage.

* [03:41 - 03:43](https://www.youtube.com/watch?t=221&v=a916_lhps04)

The awake function here is going to be fairly similar

* [03:43 - 03:45](https://www.youtube.com/watch?t=223&v=a916_lhps04)

to what we've seen before, we're starting

* [03:45 - 03:47](https://www.youtube.com/watch?t=225&v=a916_lhps04)

by getting a reference component to

* [03:47 - 03:49](https://www.youtube.com/watch?t=227&v=a916_lhps04)

our animator, we're then getting a

* [03:49 - 03:51](https://www.youtube.com/watch?t=229&v=a916_lhps04)

reference to our audio source

* [03:51 - 03:54](https://www.youtube.com/watch?t=231&v=a916_lhps04)

playerAudio = GetComponent

* [03:54 - 03:55](https://www.youtube.com/watch?t=234&v=a916_lhps04)

This is slightly new, so here we're doing

* [03:55 - 03:58](https://www.youtube.com/watch?t=235&v=a916_lhps04)

playerMovement = GetComponent

* [03:58 - 04:00](https://www.youtube.com/watch?t=238&v=a916_lhps04)

And you'll see to get the component of the script

* [04:00 - 04:03](https://www.youtube.com/watch?t=240&v=a916_lhps04)

we've created we just use the name of that script.

* [04:03 - 04:06](https://www.youtube.com/watch?t=243&v=a916_lhps04)

Script is called PlayerMovement, I want to reference to it

* [04:06 - 04:08](https://www.youtube.com/watch?t=246&v=a916_lhps04)

so I GetComponent .

* [04:08 - 04:10](https://www.youtube.com/watch?t=248&v=a916_lhps04)

Again we have some comments in our code.

* [04:10 - 04:12](https://www.youtube.com/watch?t=250&v=a916_lhps04)

We'll revisit this script and re-enable that later.

* [04:12 - 04:14](https://www.youtube.com/watch?t=252&v=a916_lhps04)

And then we're going to say our

* [04:14 - 04:16](https://www.youtube.com/watch?t=254&v=a916_lhps04)

currentHealth is equal to our startingHealth

* [04:16 - 04:18](https://www.youtube.com/watch?t=256&v=a916_lhps04)

You'll recall awake gets called right

* [04:18 - 04:20](https://www.youtube.com/watch?t=258&v=a916_lhps04)

at the beginning when the game first starts up

* [04:20 - 04:22](https://www.youtube.com/watch?t=260&v=a916_lhps04)

so we're just going to set out currentHealth to it's max

* [04:22 - 04:23](https://www.youtube.com/watch?t=262&v=a916_lhps04)

value right there.

* [04:24 - 04:26](https://www.youtube.com/watch?t=264&v=a916_lhps04)

Update method, our update method's really simple.

* [04:26 - 04:28](https://www.youtube.com/watch?t=266&v=a916_lhps04)

Update is simply concerning itself with

* [04:28 - 04:30](https://www.youtube.com/watch?t=268&v=a916_lhps04)

whether or not we are flashing that

* [04:30 - 04:32](https://www.youtube.com/watch?t=270&v=a916_lhps04)

red damaged image, right.

* [04:32 - 04:34](https://www.youtube.com/watch?t=272&v=a916_lhps04)

And so basically what this function is saying

* [04:34 - 04:36](https://www.youtube.com/watch?t=274&v=a916_lhps04)

is 'hey, if we are damaged,

* [04:36 - 04:38](https://www.youtube.com/watch?t=276&v=a916_lhps04)

if damage has been taken, what we are going to do is

* [04:38 - 04:40](https://www.youtube.com/watch?t=278&v=a916_lhps04)

we are going to set this image

* [04:40 - 04:42](https://www.youtube.com/watch?t=280&v=a916_lhps04)

to our flashColour',

* [04:42 - 04:44](https://www.youtube.com/watch?t=282&v=a916_lhps04)

which you'll recall is red with a

* [04:44 - 04:46](https://www.youtube.com/watch?t=284&v=a916_lhps04)

10% opacity, so that's going to happen

* [04:46 - 04:47](https://www.youtube.com/watch?t=286&v=a916_lhps04)

immediately, it's going to flash this red.

* [04:47 - 04:49](https://www.youtube.com/watch?t=287&v=a916_lhps04)

Otherwise, if we're not damaged,

* [04:49 - 04:52](https://www.youtube.com/watch?t=289&v=a916_lhps04)

what we're concerned with is fading

* [04:52 - 04:55](https://www.youtube.com/watch?t=292&v=a916_lhps04)

the damaged image away, so it flashes red

* [04:55 - 04:57](https://www.youtube.com/watch?t=295&v=a916_lhps04)

and then we're going to fade it back to transparent.

* [04:57 - 04:59](https://www.youtube.com/watch?t=297&v=a916_lhps04)

And we do that again using Lerp.

* [04:59 - 05:01](https://www.youtube.com/watch?t=299&v=a916_lhps04)

Before we used Vector3.Lerp

* [05:01 - 05:04](https://www.youtube.com/watch?t=301&v=a916_lhps04)

with the player's movement, so now what we're doing is

* [05:04 - 05:06](https://www.youtube.com/watch?t=304&v=a916_lhps04)

we're doing a Color.Lerp,

* [05:06 - 05:08](https://www.youtube.com/watch?t=306&v=a916_lhps04)

which is the exact same concept,

* [05:08 - 05:10](https://www.youtube.com/watch?t=308&v=a916_lhps04)

we're moving from one to another,

* [05:10 - 05:12](https://www.youtube.com/watch?t=310&v=a916_lhps04)

but instead of vector3s we're doing color.

* [05:12 - 05:14](https://www.youtube.com/watch?t=312&v=a916_lhps04)

So we're doing Color.Lerp and we're

* [05:14 - 05:16](https://www.youtube.com/watch?t=314&v=a916_lhps04)

parsing in the current color

* [05:16 - 05:18](https://www.youtube.com/watch?t=316&v=a916_lhps04)

of our damaged image and we're

* [05:18 - 05:20](https://www.youtube.com/watch?t=318&v=a916_lhps04)

parsing the color that we would like,

* [05:20 - 05:23](https://www.youtube.com/watch?t=320&v=a916_lhps04)

which is completely clear, completely invisible,

* [05:23 - 05:26](https://www.youtube.com/watch?t=323&v=a916_lhps04)

and then we have our flashSpeed

* [05:26 - 05:27](https://www.youtube.com/watch?t=326&v=a916_lhps04)

times Time.DeltaTime.

* [05:27 - 05:29](https://www.youtube.com/watch?t=327&v=a916_lhps04)

Very much like the smoothing that we had on

* [05:29 - 05:32](https://www.youtube.com/watch?t=329&v=a916_lhps04)

the camera as it would follow the player around.

* [05:32 - 05:35](https://www.youtube.com/watch?t=332&v=a916_lhps04)

Here we're just smoothing from the

* [05:35 - 05:38](https://www.youtube.com/watch?t=335&v=a916_lhps04)

color that it is all the way to transparent.

* [05:38 - 05:40](https://www.youtube.com/watch?t=338&v=a916_lhps04)

And then finally at the end of every update cycle

* [05:40 - 05:42](https://www.youtube.com/watch?t=340&v=a916_lhps04)

we're setting damaged equal to false.

* [05:42 - 05:44](https://www.youtube.com/watch?t=342&v=a916_lhps04)

What that basically means is the moment we

* [05:44 - 05:47](https://www.youtube.com/watch?t=344&v=a916_lhps04)

take damage we're then going to set damage back

* [05:47 - 05:49](https://www.youtube.com/watch?t=347&v=a916_lhps04)

to false after showing that damaged image.

* [05:50 - 05:52](https://www.youtube.com/watch?t=350&v=a916_lhps04)

In the next bit here what we have is a

* [05:52 - 05:53](https://www.youtube.com/watch?t=352&v=a916_lhps04)

called TakeDamage.

* [05:53 - 05:55](https://www.youtube.com/watch?t=353&v=a916_lhps04)

Now this function is also unique because it is a

* [05:55 - 05:58](https://www.youtube.com/watch?t=355&v=a916_lhps04)

public function, as such, what this means is

* [05:58 - 06:00](https://www.youtube.com/watch?t=358&v=a916_lhps04)

other scripts and other components can

* [06:00 - 06:01](https://www.youtube.com/watch?t=360&v=a916_lhps04)

call this function.

* [06:01 - 06:03](https://www.youtube.com/watch?t=361&v=a916_lhps04)

Take damage as a special function in the script

* [06:03 - 06:06](https://www.youtube.com/watch?t=363&v=a916_lhps04)

in that it's not called in this script.

* [06:06 - 06:08](https://www.youtube.com/watch?t=366&v=a916_lhps04)

Other stuff calls this function,

* [06:08 - 06:10](https://www.youtube.com/watch?t=368&v=a916_lhps04)

so when the enemies attack the player they

* [06:10 - 06:12](https://www.youtube.com/watch?t=370&v=a916_lhps04)

call the TakeDamage function and so

* [06:12 - 06:14](https://www.youtube.com/watch?t=372&v=a916_lhps04)

again that script interactivity is important.

* [06:14 - 06:17](https://www.youtube.com/watch?t=374&v=a916_lhps04)

It has to be public or else this isn't going to work.

* [06:17 - 06:19](https://www.youtube.com/watch?t=377&v=a916_lhps04)

The one parameter or argument for this function is

* [06:19 - 06:22](https://www.youtube.com/watch?t=379&v=a916_lhps04)

int amount, which is how much damage the player has taken.

* [06:22 - 06:24](https://www.youtube.com/watch?t=382&v=a916_lhps04)

Next what we're going to do is we want to ensure

* [06:24 - 06:27](https://www.youtube.com/watch?t=384&v=a916_lhps04)

the player flashes that red image.

* [06:27 - 06:29](https://www.youtube.com/watch?t=387&v=a916_lhps04)

So we do that by saying damaged equals true.

* [06:29 - 06:32](https://www.youtube.com/watch?t=389&v=a916_lhps04)

We detract the amount of damage from our current health.

* [06:32 - 06:34](https://www.youtube.com/watch?t=392&v=a916_lhps04)

We do that using a little shorthand here

* [06:34 - 06:37](https://www.youtube.com/watch?t=394&v=a916_lhps04)

by saying currentHealth -= amount;

* [06:37 - 06:39](https://www.youtube.com/watch?t=397&v=a916_lhps04)

What that little shorthand means is we're going to say

* [06:39 - 06:41](https://www.youtube.com/watch?t=399&v=a916_lhps04)

take the current health, remove the amount of damage

* [06:41 - 06:43](https://www.youtube.com/watch?t=401&v=a916_lhps04)

and then put that back in to current health,

* [06:43 - 06:45](https://www.youtube.com/watch?t=403&v=a916_lhps04)

so basically it just reduces by that amount.

* [06:45 - 06:47](https://www.youtube.com/watch?t=405&v=a916_lhps04)

We are then going to take our current health and

* [06:47 - 06:50](https://www.youtube.com/watch?t=407&v=a916_lhps04)

parse it in to the value of our slider.

* [06:50 - 06:52](https://www.youtube.com/watch?t=410&v=a916_lhps04)

And so we see the slider slowly

* [06:52 - 06:54](https://www.youtube.com/watch?t=412&v=a916_lhps04)

shrink as the player takes more damage.

* [06:54 - 06:56](https://www.youtube.com/watch?t=414&v=a916_lhps04)

Next we're going to play our audio and if we

* [06:56 - 06:58](https://www.youtube.com/watch?t=416&v=a916_lhps04)

recall we setup an audio source on

* [06:58 - 07:00](https://www.youtube.com/watch?t=418&v=a916_lhps04)

the player in Unity

* [07:00 - 07:03](https://www.youtube.com/watch?t=420&v=a916_lhps04)

and we gave it that Player Hurt audio.

* [07:03 - 07:05](https://www.youtube.com/watch?t=423&v=a916_lhps04)

So basically every time the player takes damage they're

* [07:05 - 07:07](https://www.youtube.com/watch?t=425&v=a916_lhps04)

going to play that hurt audio.

* [07:07 - 07:10](https://www.youtube.com/watch?t=427&v=a916_lhps04)

Finally we're going to say 'the player's hurt,

* [07:10 - 07:12](https://www.youtube.com/watch?t=430&v=a916_lhps04)

is the player dead?'.

* [07:12 - 07:14](https://www.youtube.com/watch?t=432&v=a916_lhps04)

What we're going to do is say

* [07:14 - 07:16](https://www.youtube.com/watch?t=434&v=a916_lhps04)

if the current health is now below or

* [07:16 - 07:19](https://www.youtube.com/watch?t=436&v=a916_lhps04)

equal to 0, and they're not already dead,

* [07:19 - 07:21](https://www.youtube.com/watch?t=439&v=a916_lhps04)

that's what that and not isDead

* [07:21 - 07:23](https://www.youtube.com/watch?t=441&v=a916_lhps04)

make them dead, alright, because there's no sense in

* [07:23 - 07:25](https://www.youtube.com/watch?t=443&v=a916_lhps04)

making them dead if they're already dead.

* [07:25 - 07:28](https://www.youtube.com/watch?t=445&v=a916_lhps04)

If that happens we're going to call a new function called Death.

* [07:28 - 07:30](https://www.youtube.com/watch?t=448&v=a916_lhps04)

Death is a function that is in this script.

* [07:30 - 07:32](https://www.youtube.com/watch?t=450&v=a916_lhps04)

It's not built in to Unity or anything like that.

* [07:32 - 07:34](https://www.youtube.com/watch?t=452&v=a916_lhps04)

It's actually the very next function we're going to look at.

* [07:34 - 07:36](https://www.youtube.com/watch?t=454&v=a916_lhps04)

Basically if the health drops below 0

* [07:36 - 07:37](https://www.youtube.com/watch?t=456&v=a916_lhps04)

we're going to call this Death function,

* [07:37 - 07:39](https://www.youtube.com/watch?t=457&v=a916_lhps04)

and here's what the Death function does.

* [07:39 - 07:41](https://www.youtube.com/watch?t=459&v=a916_lhps04)

The first thing the Death function does is sets

* [07:41 - 07:44](https://www.youtube.com/watch?t=461&v=a916_lhps04)

isDead equal to true, saying 'yeah, okay, player is dead'.

* [07:44 - 07:47](https://www.youtube.com/watch?t=464&v=a916_lhps04)

Next we've got some disabled code, we'll come back to that.

* [07:47 - 07:50](https://www.youtube.com/watch?t=467&v=a916_lhps04)

Next we say anim.SetTrigger ("Die");

* [07:50 - 07:52](https://www.youtube.com/watch?t=470&v=a916_lhps04)

remember when we did the Animator Controller

* [07:52 - 07:54](https://www.youtube.com/watch?t=472&v=a916_lhps04)

in the animator window and we had that second

* [07:54 - 07:56](https://www.youtube.com/watch?t=474&v=a916_lhps04)

parameter which was Die which was a trigger?

* [07:56 - 07:58](https://www.youtube.com/watch?t=476&v=a916_lhps04)

This is where we play that animation

* [07:58 - 08:00](https://www.youtube.com/watch?t=478&v=a916_lhps04)

so we say SetTrigger Die and the character

* [08:00 - 08:02](https://www.youtube.com/watch?t=480&v=a916_lhps04)

plays their death animation.

* [08:02 - 08:04](https://www.youtube.com/watch?t=482&v=a916_lhps04)

We then set the audio clip of

* [08:04 - 08:07](https://www.youtube.com/watch?t=484&v=a916_lhps04)

the audio source to this Death clip

* [08:07 - 08:09](https://www.youtube.com/watch?t=487&v=a916_lhps04)

and then we play that sound, the sound the player makes

* [08:09 - 08:10](https://www.youtube.com/watch?t=489&v=a916_lhps04)

when they lose the game.

* [08:10 - 08:12](https://www.youtube.com/watch?t=490&v=a916_lhps04)

And then finally here's where we access

* [08:12 - 08:14](https://www.youtube.com/watch?t=492&v=a916_lhps04)

that script, the Player Movement script

* [08:14 - 08:15](https://www.youtube.com/watch?t=494&v=a916_lhps04)

we added as a component.

* [08:15 - 08:18](https://www.youtube.com/watch?t=495&v=a916_lhps04)

We say playerMovement.enabled = false;

* [08:18 - 08:20](https://www.youtube.com/watch?t=498&v=a916_lhps04)

which basically means no more movement.

* [08:20 - 08:22](https://www.youtube.com/watch?t=500&v=a916_lhps04)

That script component on the object gets

* [08:22 - 08:24](https://www.youtube.com/watch?t=502&v=a916_lhps04)

disabled, stops reading our inputs,

* [08:24 - 08:26](https://www.youtube.com/watch?t=504&v=a916_lhps04)

player stops moving.

* [08:26 - 08:28](https://www.youtube.com/watch?t=506&v=a916_lhps04)

And so this is that script

* [08:28 - 08:30](https://www.youtube.com/watch?t=508&v=a916_lhps04)

in it's entirety so let's go ahead and

* [08:30 - 08:32](https://www.youtube.com/watch?t=510&v=a916_lhps04)

close this down here and now we're going to

* [08:32 - 08:34](https://www.youtube.com/watch?t=512&v=a916_lhps04)

return to the Unity editor.

* [08:34 - 08:37](https://www.youtube.com/watch?t=514&v=a916_lhps04)

And again I reiterate, make sure if you

* [08:37 - 08:39](https://www.youtube.com/watch?t=517&v=a916_lhps04)

click on the player in the hierarchy

* [08:39 - 08:41](https://www.youtube.com/watch?t=519&v=a916_lhps04)

that you see the playerHeath component

* [08:41 - 08:43](https://www.youtube.com/watch?t=521&v=a916_lhps04)

at the very bottom, which will let you know that you

* [08:43 - 08:46](https://www.youtube.com/watch?t=523&v=a916_lhps04)

put that script on to the right game object.

* [08:47 - 08:49](https://www.youtube.com/watch?t=527&v=a916_lhps04)

Now that we are

* [08:49 - 08:52](https://www.youtube.com/watch?t=529&v=a916_lhps04)

back here and we have this PlayerHeath script component

* [08:52 - 08:54](https://www.youtube.com/watch?t=532&v=a916_lhps04)

on the player game object what we're

* [08:54 - 08:56](https://www.youtube.com/watch?t=534&v=a916_lhps04)

going to do is we are going to start

* [08:56 - 08:58](https://www.youtube.com/watch?t=536&v=a916_lhps04)

filling in some of these values.

* [08:58 - 09:00](https://www.youtube.com/watch?t=538&v=a916_lhps04)

So we could see Starting Health is 100, that's fine,

* [09:00 - 09:01](https://www.youtube.com/watch?t=540&v=a916_lhps04)

it's what we want.

* [09:01 - 09:03](https://www.youtube.com/watch?t=541&v=a916_lhps04)

Current Health is 0, again that doesn't matter

* [09:03 - 09:05](https://www.youtube.com/watch?t=543&v=a916_lhps04)

it'll be set in the awake function.

* [09:05 - 09:07](https://www.youtube.com/watch?t=545&v=a916_lhps04)

But here we have this Health Slider property.

* [09:07 - 09:09](https://www.youtube.com/watch?t=547&v=a916_lhps04)

And it's currently empty.

* [09:09 - 09:11](https://www.youtube.com/watch?t=549&v=a916_lhps04)

This is where we establish that link between

* [09:11 - 09:13](https://www.youtube.com/watch?t=551&v=a916_lhps04)

the UI that we created and the

* [09:13 - 09:14](https://www.youtube.com/watch?t=553&v=a916_lhps04)

script that we've just added.

* [09:14 - 09:16](https://www.youtube.com/watch?t=554&v=a916_lhps04)

So if we look in the hierarchy

* [09:16 - 09:20](https://www.youtube.com/watch?t=556&v=a916_lhps04)

we see the HUDCanvas, which we expand

* [09:20 - 09:22](https://www.youtube.com/watch?t=560&v=a916_lhps04)

and then the healthUI, which we expand,

* [09:22 - 09:25](https://www.youtube.com/watch?t=562&v=a916_lhps04)

and right here we have our HealthSlider.

* [09:25 - 09:27](https://www.youtube.com/watch?t=565&v=a916_lhps04)

So if we were to take this health slider and

* [09:27 - 09:29](https://www.youtube.com/watch?t=567&v=a916_lhps04)

click and drag and drop it in to the

* [09:29 - 09:31](https://www.youtube.com/watch?t=569&v=a916_lhps04)

Health Slider property that will link

* [09:31 - 09:33](https://www.youtube.com/watch?t=571&v=a916_lhps04)

the healthSliderUI component

* [09:33 - 09:36](https://www.youtube.com/watch?t=573&v=a916_lhps04)

with this Player Health script.

* [09:36 - 09:39](https://www.youtube.com/watch?t=576&v=a916_lhps04)

So now we can update the health via the slider.

* [09:39 - 09:41](https://www.youtube.com/watch?t=579&v=a916_lhps04)

Next we have this Damage Image,

* [09:41 - 09:43](https://www.youtube.com/watch?t=581&v=a916_lhps04)

so again I'm going to come up and grab my

* [09:43 - 09:46](https://www.youtube.com/watch?t=583&v=a916_lhps04)

Damage Image from the HUD and I'm going to click and drag

* [09:46 - 09:50](https://www.youtube.com/watch?t=586&v=a916_lhps04)

down in to the Damage Image property in the script.

* [09:50 - 09:53](https://www.youtube.com/watch?t=590&v=a916_lhps04)

And then finally I have this Death Clip,

* [09:53 - 09:55](https://www.youtube.com/watch?t=593&v=a916_lhps04)

where it currently says None I'm going to click the circle select

* [09:55 - 09:57](https://www.youtube.com/watch?t=595&v=a916_lhps04)

here and I'm going to look for

* [09:57 - 09:59](https://www.youtube.com/watch?t=597&v=a916_lhps04)

Player Death and I'm going to double click

* [09:59 - 10:02](https://www.youtube.com/watch?t=599&v=a916_lhps04)

and we'll see that that gets added there.

* [10:02 - 10:03](https://www.youtube.com/watch?t=602&v=a916_lhps04)

So the next thing I want to do now,

* [10:03 - 10:06](https://www.youtube.com/watch?t=603&v=a916_lhps04)

the player has health and the health is interfaced

* [10:06 - 10:08](https://www.youtube.com/watch?t=606&v=a916_lhps04)

with our UI system, so as the player loses

* [10:08 - 10:10](https://www.youtube.com/watch?t=608&v=a916_lhps04)

health the UI system reacts, and all that's done.

* [10:10 - 10:12](https://www.youtube.com/watch?t=610&v=a916_lhps04)

Now what we want to do is we want to give the

* [10:12 - 10:14](https://www.youtube.com/watch?t=612&v=a916_lhps04)

enemies the ability to actually attack the player

* [10:14 - 10:16](https://www.youtube.com/watch?t=614&v=a916_lhps04)

and thus we can see that this all works and

* [10:16 - 10:19](https://www.youtube.com/watch?t=616&v=a916_lhps04)

see the interactivity of our game objects.

* [10:19 - 10:21](https://www.youtube.com/watch?t=619&v=a916_lhps04)

We want to look in the Scripts folder

* [10:21 - 10:23](https://www.youtube.com/watch?t=621&v=a916_lhps04)

and we want to locate the Enemy scripts folder

* [10:23 - 10:26](https://www.youtube.com/watch?t=623&v=a916_lhps04)

and we're going to locate the EnemyAttack script.

* [10:27 - 10:29](https://www.youtube.com/watch?t=627&v=a916_lhps04)

What we want to do is click

* [10:29 - 10:32](https://www.youtube.com/watch?t=629&v=a916_lhps04)

and drag that on to the Zombunny.

* [10:33 - 10:35](https://www.youtube.com/watch?t=633&v=a916_lhps04)

Again when we select the Zombunny afterwards

* [10:35 - 10:37](https://www.youtube.com/watch?t=635&v=a916_lhps04)

we should see,

* [10:38 - 10:39](https://www.youtube.com/watch?t=638&v=a916_lhps04)

we should see EnemyAttack

* [10:40 - 10:41](https://www.youtube.com/watch?t=640&v=a916_lhps04)

at the bottom there.

* [10:41 - 10:43](https://www.youtube.com/watch?t=641&v=a916_lhps04)

Let's go ahead and open up EnemyAttack.

* [10:44 - 10:47](https://www.youtube.com/watch?t=644&v=a916_lhps04)

EnemyAttack, a lot of this stuff is going to be

* [10:47 - 10:49](https://www.youtube.com/watch?t=647&v=a916_lhps04)

very familiar to you by now,

* [10:49 - 10:51](https://www.youtube.com/watch?t=649&v=a916_lhps04)

but again we're going to start with a few public variables.

* [10:51 - 10:54](https://www.youtube.com/watch?t=651&v=a916_lhps04)

The first public variable we're interested in is a public float

* [10:54 - 10:56](https://www.youtube.com/watch?t=654&v=a916_lhps04)

timeBetweenAttacks,

* [10:56 - 10:58](https://www.youtube.com/watch?t=656&v=a916_lhps04)

which is 0.5.

* [10:58 - 11:00](https://www.youtube.com/watch?t=658&v=a916_lhps04)

It basically is the amount of time

* [11:00 - 11:02](https://www.youtube.com/watch?t=660&v=a916_lhps04)

between each of the attacks

* [11:02 - 11:05](https://www.youtube.com/watch?t=662&v=a916_lhps04)

And then we also have a public integer, which is the attackDamage.

* [11:05 - 11:07](https://www.youtube.com/watch?t=665&v=a916_lhps04)

So how much damage has each of these

* [11:07 - 11:09](https://www.youtube.com/watch?t=667&v=a916_lhps04)

attacks done to the player.

* [11:09 - 11:11](https://www.youtube.com/watch?t=669&v=a916_lhps04)

Then we have our private variables, and again

* [11:11 - 11:13](https://www.youtube.com/watch?t=671&v=a916_lhps04)

these are very similar, we have an

* [11:13 - 11:15](https://www.youtube.com/watch?t=673&v=a916_lhps04)

Animator variable named anim which is going to

* [11:15 - 11:17](https://www.youtube.com/watch?t=675&v=a916_lhps04)

store our reference to our animator component.

* [11:17 - 11:20](https://www.youtube.com/watch?t=677&v=a916_lhps04)

We have a GameObject parameter which

* [11:20 - 11:22](https://www.youtube.com/watch?t=680&v=a916_lhps04)

is going to be the player, so again the

* [11:22 - 11:24](https://www.youtube.com/watch?t=682&v=a916_lhps04)

enemy will be able to attack the player

* [11:24 - 11:26](https://www.youtube.com/watch?t=684&v=a916_lhps04)

but it needs to have some reference to that player.

* [11:26 - 11:29](https://www.youtube.com/watch?t=686&v=a916_lhps04)

We have a reference to the PlayerHealth script.

* [11:29 - 11:33](https://www.youtube.com/watch?t=689&v=a916_lhps04)

This is new, we have the enemy

* [11:33 - 11:35](https://www.youtube.com/watch?t=693&v=a916_lhps04)

referencing a script that we have created

* [11:35 - 11:37](https://www.youtube.com/watch?t=695&v=a916_lhps04)

that is on a different game object.

* [11:37 - 11:39](https://www.youtube.com/watch?t=697&v=a916_lhps04)

So the player has a PlayerHealth script

* [11:39 - 11:41](https://www.youtube.com/watch?t=699&v=a916_lhps04)

and the enemy has a reference to it

* [11:41 - 11:44](https://www.youtube.com/watch?t=701&v=a916_lhps04)

so that the enemy can then damage the player.

* [11:44 - 11:46](https://www.youtube.com/watch?t=704&v=a916_lhps04)

We have a bit of code that is commented out

* [11:46 - 11:48](https://www.youtube.com/watch?t=706&v=a916_lhps04)

and then we have a boolean value playerInRange.

* [11:48 - 11:50](https://www.youtube.com/watch?t=708&v=a916_lhps04)

This will be set to true whenever the player gets

* [11:50 - 11:52](https://www.youtube.com/watch?t=710&v=a916_lhps04)

close enough for the enemy to attack/

* [11:52 - 11:54](https://www.youtube.com/watch?t=712&v=a916_lhps04)

It'll be set back to false when the player

* [11:54 - 11:56](https://www.youtube.com/watch?t=714&v=a916_lhps04)

gets too far away.

* [11:56 - 11:58](https://www.youtube.com/watch?t=716&v=a916_lhps04)

And then finally we have float timer,

* [11:58 - 12:00](https://www.youtube.com/watch?t=718&v=a916_lhps04)

and timer is a variable that we're going to use to keep

* [12:00 - 12:02](https://www.youtube.com/watch?t=720&v=a916_lhps04)

everything in sync, to make sure that the enemy is not

* [12:02 - 12:04](https://www.youtube.com/watch?t=722&v=a916_lhps04)

not too fast, not too slow.

* [12:04 - 12:06](https://www.youtube.com/watch?t=724&v=a916_lhps04)

In our awake function, again we're going to be

* [12:06 - 12:08](https://www.youtube.com/watch?t=726&v=a916_lhps04)

setting up a lot of our stuff so

* [12:08 - 12:12](https://www.youtube.com/watch?t=728&v=a916_lhps04)

we're doing GameObject.FindGameObjectWithTag ("player");

* [12:12 - 12:15](https://www.youtube.com/watch?t=732&v=a916_lhps04)

Which again is going to locate the player for us

* [12:15 - 12:17](https://www.youtube.com/watch?t=735&v=a916_lhps04)

and store that reference locally.

* [12:17 - 12:19](https://www.youtube.com/watch?t=737&v=a916_lhps04)

We do this in the awake method and then we store it

* [12:19 - 12:21](https://www.youtube.com/watch?t=739&v=a916_lhps04)

so that we don't have to do it every frame

* [12:21 - 12:22](https://www.youtube.com/watch?t=741&v=a916_lhps04)

or every time we need it.

* [12:22 - 12:24](https://www.youtube.com/watch?t=742&v=a916_lhps04)

This is a fairly inefficient call

* [12:24 - 12:26](https://www.youtube.com/watch?t=744&v=a916_lhps04)

so we really want to limit the number of time

* [12:26 - 12:28](https://www.youtube.com/watch?t=746&v=a916_lhps04)

we do that, so by doing it once in the awake function

* [12:28 - 12:30](https://www.youtube.com/watch?t=748&v=a916_lhps04)

and storing it we're greatly improving

* [12:30 - 12:33](https://www.youtube.com/watch?t=750&v=a916_lhps04)

the performance of our games and projects.

* [12:33 - 12:36](https://www.youtube.com/watch?t=753&v=a916_lhps04)

Then we use that player object that we just found

* [12:36 - 12:39](https://www.youtube.com/watch?t=756&v=a916_lhps04)

and we say player.GetComponent

* [12:39 - 12:41](https://www.youtube.com/watch?t=759&v=a916_lhps04)

thus pulling the PlayerHealth script off

* [12:41 - 12:44](https://www.youtube.com/watch?t=761&v=a916_lhps04)

off that player, and again, storing a reference to it.

* [12:44 - 12:46](https://www.youtube.com/watch?t=764&v=a916_lhps04)

Now with that reference we have the ability to

* [12:46 - 12:49](https://www.youtube.com/watch?t=766&v=a916_lhps04)

call that public function takeDamage we saw previously.

* [12:49 - 12:52](https://www.youtube.com/watch?t=769&v=a916_lhps04)

And then finally we do GetComponent

* [12:52 - 12:54](https://www.youtube.com/watch?t=772&v=a916_lhps04)

to setup a reference to our animator component.

* [12:54 - 12:56](https://www.youtube.com/watch?t=774&v=a916_lhps04)

Now remember how we created the

* [12:56 - 12:58](https://www.youtube.com/watch?t=776&v=a916_lhps04)

sphere collider on the enemy that was a trigger

* [12:58 - 13:00](https://www.youtube.com/watch?t=778&v=a916_lhps04)

and I talked about how triggers are

* [13:00 - 13:03](https://www.youtube.com/watch?t=780&v=a916_lhps04)

not used for in-scene effects

* [13:03 - 13:05](https://www.youtube.com/watch?t=783&v=a916_lhps04)

and Will was talking about how we use these

* [13:05 - 13:08](https://www.youtube.com/watch?t=785&v=a916_lhps04)

for detecting collisions and stuff behind the scenes?

* [13:08 - 13:10](https://www.youtube.com/watch?t=788&v=a916_lhps04)

If we have a trigger on an object and

* [13:10 - 13:12](https://www.youtube.com/watch?t=790&v=a916_lhps04)

another object comes in collision with that

* [13:12 - 13:16](https://www.youtube.com/watch?t=792&v=a916_lhps04)

it doesn't react physically, because it's a trigger.

* [13:16 - 13:18](https://www.youtube.com/watch?t=796&v=a916_lhps04)

Instead it calls a function

* [13:18 - 13:20](https://www.youtube.com/watch?t=798&v=a916_lhps04)

and if we have a function in a script

* [13:20 - 13:22](https://www.youtube.com/watch?t=800&v=a916_lhps04)

that function runs.

* [13:22 - 13:24](https://www.youtube.com/watch?t=802&v=a916_lhps04)

The function's called OnTriggerEnter

* [13:24 - 13:26](https://www.youtube.com/watch?t=804&v=a916_lhps04)

and it gets called whenever anything goes

* [13:26 - 13:27](https://www.youtube.com/watch?t=806&v=a916_lhps04)

in to a trigger.

* [13:27 - 13:30](https://www.youtube.com/watch?t=807&v=a916_lhps04)

So here we have void OnTriggerEnter

* [13:30 - 13:33](https://www.youtube.com/watch?t=810&v=a916_lhps04)

and then inside parenthesis we have (Collider other).

* [13:33 - 13:35](https://www.youtube.com/watch?t=813&v=a916_lhps04)

Other is whatever it is that

* [13:35 - 13:37](https://www.youtube.com/watch?t=815&v=a916_lhps04)

collider with this collider.

* [13:37 - 13:39](https://www.youtube.com/watch?t=817&v=a916_lhps04)

If I'm the enemy and something collided with me chances

* [13:39 - 13:40](https://www.youtube.com/watch?t=819&v=a916_lhps04)

are Other is the player.

* [13:40 - 13:42](https://www.youtube.com/watch?t=820&v=a916_lhps04)

And so now I know where that is.

* [13:42 - 13:44](https://www.youtube.com/watch?t=822&v=a916_lhps04)

So the very next line is

* [13:44 - 13:47](https://www.youtube.com/watch?t=824&v=a916_lhps04)

me making sure that it's the player

* [13:47 - 13:49](https://www.youtube.com/watch?t=827&v=a916_lhps04)

because we don't want to be able to attack a sofa

* [13:49 - 13:51](https://www.youtube.com/watch?t=829&v=a916_lhps04)

we want to only attack the player and

* [13:51 - 13:53](https://www.youtube.com/watch?t=831&v=a916_lhps04)

as such we want to ensure

* [13:53 - 13:54](https://www.youtube.com/watch?t=833&v=a916_lhps04)

what it is we are attacking, so we're going to say

* [13:54 - 13:58](https://www.youtube.com/watch?t=834&v=a916_lhps04)

if(other.gameObject == player)

* [13:58 - 14:01](https://www.youtube.com/watch?t=838&v=a916_lhps04)

and that double equals is an equality operator, it says

* [14:01 - 14:03](https://www.youtube.com/watch?t=841&v=a916_lhps04)

'are these the same thing?'.

* [14:03 - 14:06](https://www.youtube.com/watch?t=843&v=a916_lhps04)

So if what we collided with is the player,

* [14:06 - 14:08](https://www.youtube.com/watch?t=846&v=a916_lhps04)

cool, okay, then we can attack it.

* [14:08 - 14:11](https://www.youtube.com/watch?t=848&v=a916_lhps04)

If that's true then we set playerInRange to true.

* [14:11 - 14:13](https://www.youtube.com/watch?t=851&v=a916_lhps04)

Now there's an inverse version of that

* [14:13 - 14:16](https://www.youtube.com/watch?t=853&v=a916_lhps04)

function called OnTriggerExit.

* [14:16 - 14:19](https://www.youtube.com/watch?t=856&v=a916_lhps04)

It tells us that something was in the trigger

* [14:19 - 14:20](https://www.youtube.com/watch?t=859&v=a916_lhps04)

and it has now gone away.

* [14:20 - 14:22](https://www.youtube.com/watch?t=860&v=a916_lhps04)

Alright, that's just the complete opposite.

* [14:22 - 14:24](https://www.youtube.com/watch?t=862&v=a916_lhps04)

So again what we're going to say is

* [14:24 - 14:27](https://www.youtube.com/watch?t=864&v=a916_lhps04)

was the thing that left the trigger the player?

* [14:27 - 14:29](https://www.youtube.com/watch?t=867&v=a916_lhps04)

If it was the player is no longer

* [14:29 - 14:31](https://www.youtube.com/watch?t=869&v=a916_lhps04)

in range, so we set that to false.

* [14:32 - 14:34](https://www.youtube.com/watch?t=872&v=a916_lhps04)

So we just used the trigger to say 'hey, they're close enough'

* [14:34 - 14:35](https://www.youtube.com/watch?t=874&v=a916_lhps04)

'no, they're not close enough any more'.

* [14:35 - 14:37](https://www.youtube.com/watch?t=875&v=a916_lhps04)

'Hey they're close enough, no they're not close enough any more'.

* [14:37 - 14:39](https://www.youtube.com/watch?t=877&v=a916_lhps04)

This isn't actually the attacking part

* [14:39 - 14:41](https://www.youtube.com/watch?t=879&v=a916_lhps04)

this is just how we determine whether we're close enough.

* [14:42 - 14:44](https://www.youtube.com/watch?t=882&v=a916_lhps04)

The actual attacking happens in the update.

* [14:44 - 14:46](https://www.youtube.com/watch?t=884&v=a916_lhps04)

In the update method the first thing we

* [14:46 - 14:49](https://www.youtube.com/watch?t=886&v=a916_lhps04)

do is we determine how much time has occurred.

* [14:49 - 14:51](https://www.youtube.com/watch?t=889&v=a916_lhps04)

We start accumulating this time

* [14:51 - 14:53](https://www.youtube.com/watch?t=891&v=a916_lhps04)

inside the variable Timer.

* [14:53 - 14:55](https://www.youtube.com/watch?t=893&v=a916_lhps04)

So every time update runs Timer gets a little bit bigger and

* [14:55 - 14:59](https://www.youtube.com/watch?t=895&v=a916_lhps04)

a little bit bigger and it represents how much time has passed.

* [14:59 - 15:01](https://www.youtube.com/watch?t=899&v=a916_lhps04)

Then we're going to say

* [15:01 - 15:03](https://www.youtube.com/watch?t=901&v=a916_lhps04)

if the timer is greater than

* [15:03 - 15:06](https://www.youtube.com/watch?t=903&v=a916_lhps04)

the time between attacks, so it's been long enough

* [15:06 - 15:09](https://www.youtube.com/watch?t=906&v=a916_lhps04)

between attacks and the player is close enough,

* [15:09 - 15:11](https://www.youtube.com/watch?t=909&v=a916_lhps04)

we're going to attack the player.

* [15:11 - 15:13](https://www.youtube.com/watch?t=911&v=a916_lhps04)

And we can see that we call the function Attack.

* [15:13 - 15:15](https://www.youtube.com/watch?t=913&v=a916_lhps04)

Then finally we'll look at Attack here in a second.

* [15:15 - 15:17](https://www.youtube.com/watch?t=915&v=a916_lhps04)

Then finally we say

* [15:17 - 15:19](https://www.youtube.com/watch?t=917&v=a916_lhps04)

if the player's health is

* [15:19 - 15:22](https://www.youtube.com/watch?t=919&v=a916_lhps04)

equal to 0, that means the player died,

* [15:22 - 15:24](https://www.youtube.com/watch?t=922&v=a916_lhps04)

right, our attack killed it and the player died

* [15:24 - 15:27](https://www.youtube.com/watch?t=924&v=a916_lhps04)

so we're going to do anim.SetTrigger ("PlayerDead");

* [15:27 - 15:31](https://www.youtube.com/watch?t=927&v=a916_lhps04)

which as we recall will transition us from the

* [15:31 - 15:34](https://www.youtube.com/watch?t=931&v=a916_lhps04)

moving state to the idle state.

* [15:34 - 15:36](https://www.youtube.com/watch?t=934&v=a916_lhps04)

Player is dead so now we just get to sit around and go

* [15:36 - 15:37](https://www.youtube.com/watch?t=936&v=a916_lhps04)

'well that was fun, now what?'.

* [15:37 - 15:40](https://www.youtube.com/watch?t=937&v=a916_lhps04)

And so that's how we stop chasing the player around.

* [15:40 - 15:42](https://www.youtube.com/watch?t=940&v=a916_lhps04)

So if the timer is greater than the time between attacks

* [15:42 - 15:45](https://www.youtube.com/watch?t=942&v=a916_lhps04)

and the player is in range then we call this aAttack function

* [15:45 - 15:47](https://www.youtube.com/watch?t=945&v=a916_lhps04)

and this is what the Attack function looks like.

* [15:47 - 15:48](https://www.youtube.com/watch?t=947&v=a916_lhps04)

The first thing we do is we reset Timer.

* [15:48 - 15:51](https://www.youtube.com/watch?t=948&v=a916_lhps04)

We're now attacking so Timer is set back to 0.

* [15:51 - 15:54](https://www.youtube.com/watch?t=951&v=a916_lhps04)

And then we're going to say if the player is alive

* [15:54 - 15:56](https://www.youtube.com/watch?t=954&v=a916_lhps04)

playerHealth.currentHealth is greater than 0,

* [15:56 - 15:58](https://www.youtube.com/watch?t=956&v=a916_lhps04)

let's take some of that away.

* [15:58 - 16:00](https://www.youtube.com/watch?t=958&v=a916_lhps04)

So we say playerHealth.takeDamage

* [16:00 - 16:03](https://www.youtube.com/watch?t=960&v=a916_lhps04)

and we parse in however much damage this enemy does.

* [16:03 - 16:05](https://www.youtube.com/watch?t=963&v=a916_lhps04)

And so then the player is going to manage

* [16:05 - 16:07](https://www.youtube.com/watch?t=965&v=a916_lhps04)

the rest of that and if that happens to kill them

* [16:07 - 16:09](https://www.youtube.com/watch?t=967&v=a916_lhps04)

the rest of the update will run and we'll

* [16:09 - 16:11](https://www.youtube.com/watch?t=969&v=a916_lhps04)

transition in to the idle state.

* [16:11 - 16:14](https://www.youtube.com/watch?t=971&v=a916_lhps04)

And so that is our enemy attack

* [16:14 - 16:16](https://www.youtube.com/watch?t=974&v=a916_lhps04)

and once we've taken a look at that

* [16:16 - 16:18](https://www.youtube.com/watch?t=976&v=a916_lhps04)

be sure to save our scene to wrap up

* [16:18 - 16:19](https://www.youtube.com/watch?t=978&v=a916_lhps04)

what we've just done here.

* [16:19 - 16:22](https://www.youtube.com/watch?t=979&v=a916_lhps04)

Why not test this? Let's pop back over to Unity.

* [16:23 - 16:26](https://www.youtube.com/watch?t=983&v=a916_lhps04)

Will, go ahead and get eaten!

* [16:28 - 16:30](https://www.youtube.com/watch?t=988&v=a916_lhps04)

Oh, and he's taken damage

* [16:30 - 16:33](https://www.youtube.com/watch?t=990&v=a916_lhps04)

and we see the health slider being reduced in size,

* [16:33 - 16:36](https://www.youtube.com/watch?t=993&v=a916_lhps04)

we see the screen flashing slightly,

* [16:36 - 16:39](https://www.youtube.com/watch?t=996&v=a916_lhps04)

and man, that Zombunny is relentless!

* [16:39 - 16:41](https://www.youtube.com/watch?t=999&v=a916_lhps04)

I don't think he wants to give you hugs.

* [16:42 - 16:45](https://www.youtube.com/watch?t=1002&v=a916_lhps04)

The damage image there is quite faint.

* [16:45 - 16:47](https://www.youtube.com/watch?t=1005&v=a916_lhps04)

But we can play around with that with the

* [16:47 - 16:50](https://www.youtube.com/watch?t=1007&v=a916_lhps04)

Flash Color public variable on PlayerHealth

* [16:50 - 16:51](https://www.youtube.com/watch?t=1010&v=a916_lhps04)

on the player.

* [16:51 - 16:53](https://www.youtube.com/watch?t=1011&v=a916_lhps04)

So if we wanted to make that more apparent

* [16:53 - 16:55](https://www.youtube.com/watch?t=1013&v=a916_lhps04)

we could crank it up a little bit and it would flash

* [16:55 - 16:57](https://www.youtube.com/watch?t=1015&v=a916_lhps04)

a bit more harshly, like that.

* [16:57 - 16:59](https://www.youtube.com/watch?t=1017&v=a916_lhps04)

Again he achieved this just now by increasing

* [16:59 - 17:03](https://www.youtube.com/watch?t=1019&v=a916_lhps04)

the alpha of the color on the Player Health script.

* [17:03 - 17:07](https://www.youtube.com/watch?t=1023&v=a916_lhps04)

Obviously the higher the alpha the stronger the effect

* [17:07 - 17:09](https://www.youtube.com/watch?t=1027&v=a916_lhps04)

and so on and so forth.

# Phase 7

* So we have previously set
* [00:04 - 00:06](https://www.youtube.com/watch?t=4&v=l86gpYbQFzY)

the player up so we can see that the model

* [00:06 - 00:09](https://www.youtube.com/watch?t=6&v=l86gpYbQFzY)

has a gun built in, so let's go ahead

* [00:09 - 00:11](https://www.youtube.com/watch?t=9&v=l86gpYbQFzY)

and get the player to

* [00:11 - 00:13](https://www.youtube.com/watch?t=11&v=l86gpYbQFzY)

a point where the player can defend themselves.

* [00:13 - 00:15](https://www.youtube.com/watch?t=13&v=l86gpYbQFzY)

What we're going to do is give the enemy the ability to

* [00:15 - 00:17](https://www.youtube.com/watch?t=15&v=l86gpYbQFzY)

have health and then we're going to give the player

* [00:17 - 00:19](https://www.youtube.com/watch?t=17&v=l86gpYbQFzY)

the ability to take that health away.

* [00:19 - 00:22](https://www.youtube.com/watch?t=19&v=l86gpYbQFzY)

So we're going to go through the enemy health script next.

* [00:22 - 00:24](https://www.youtube.com/watch?t=22&v=l86gpYbQFzY)

So we'll start off by finding it in

* [00:24 - 00:26](https://www.youtube.com/watch?t=24&v=l86gpYbQFzY)

Scripts - Enemy folder.

* [00:26 - 00:28](https://www.youtube.com/watch?t=26&v=l86gpYbQFzY)

Then we can drag and drop that

* [00:28 - 00:30](https://www.youtube.com/watch?t=28&v=l86gpYbQFzY)

on to the Zombunny in the hierarchy.

* [00:30 - 00:32](https://www.youtube.com/watch?t=30&v=l86gpYbQFzY)

So that's going to apply the script for us.

* [00:34 - 00:38](https://www.youtube.com/watch?t=34&v=l86gpYbQFzY)

On the Zombunny, so we can see that there's

* [00:39 - 00:40](https://www.youtube.com/watch?t=39&v=l86gpYbQFzY)

a Death clip

* [00:41 - 00:43](https://www.youtube.com/watch?t=41&v=l86gpYbQFzY)

which we're going to apply.

* [00:43 - 00:45](https://www.youtube.com/watch?t=43&v=l86gpYbQFzY)

Use the circle select button

* [00:47 - 00:50](https://www.youtube.com/watch?t=47&v=l86gpYbQFzY)

and that's opened up the context sensitive menu so we can

* [00:50 - 00:53](https://www.youtube.com/watch?t=50&v=l86gpYbQFzY)

find Zombunny Death. Apply that.

* [00:54 - 00:56](https://www.youtube.com/watch?t=54&v=l86gpYbQFzY)

So now everything's setup for us, we can

* [00:56 - 00:58](https://www.youtube.com/watch?t=56&v=l86gpYbQFzY)

edit that script or view it

* [00:58 - 01:00](https://www.youtube.com/watch?t=58&v=l86gpYbQFzY)

and see what's going on in that.

* [01:00 - 01:02](https://www.youtube.com/watch?t=60&v=l86gpYbQFzY)

Double click the icon to open it.

* [01:04 - 01:08](https://www.youtube.com/watch?t=64&v=l86gpYbQFzY)

As always we've got our public variables at the top.

* [01:08 - 01:10](https://www.youtube.com/watch?t=68&v=l86gpYbQFzY)

And very similar to the player's health we've got

* [01:10 - 01:12](https://www.youtube.com/watch?t=70&v=l86gpYbQFzY)

startingHealth and a currentHealth.

* [01:12 - 01:14](https://www.youtube.com/watch?t=72&v=l86gpYbQFzY)

They work exactly the same as the player.

* [01:15 - 01:18](https://www.youtube.com/watch?t=75&v=l86gpYbQFzY)

The next one is the sinkSpeed.

* [01:18 - 01:21](https://www.youtube.com/watch?t=78&v=l86gpYbQFzY)

When these enemies die

* [01:21 - 01:23](https://www.youtube.com/watch?t=81&v=l86gpYbQFzY)

it looks a bit funky to just have them

* [01:23 - 01:25](https://www.youtube.com/watch?t=83&v=l86gpYbQFzY)

lay there and then suddenly disappear.

* [01:25 - 01:27](https://www.youtube.com/watch?t=85&v=l86gpYbQFzY)

So what we're going to do is make them sink through

* [01:27 - 01:29](https://www.youtube.com/watch?t=87&v=l86gpYbQFzY)

the floor, so as soon as they've

* [01:29 - 01:31](https://www.youtube.com/watch?t=89&v=l86gpYbQFzY)

finished flopping over and dying they sink

* [01:31 - 01:33](https://www.youtube.com/watch?t=91&v=l86gpYbQFzY)

through the floor, and that's how fast

* [01:33 - 01:35](https://www.youtube.com/watch?t=93&v=l86gpYbQFzY)

we want them to sink through the floor.

* [01:35 - 01:37](https://www.youtube.com/watch?t=95&v=l86gpYbQFzY)

Later on in the day we're going to start doing

* [01:37 - 01:39](https://www.youtube.com/watch?t=97&v=l86gpYbQFzY)

scoring for this game and

* [01:39 - 01:41](https://www.youtube.com/watch?t=99&v=l86gpYbQFzY)

so each enemy needs to have a scoreValue,

* [01:41 - 01:43](https://www.youtube.com/watch?t=101&v=l86gpYbQFzY)

how much they increase our score by

* [01:43 - 01:45](https://www.youtube.com/watch?t=103&v=l86gpYbQFzY)

and that is the scoreValue.

* [01:45 - 01:47](https://www.youtube.com/watch?t=105&v=l86gpYbQFzY)

And we've got the deathClip

* [01:47 - 01:49](https://www.youtube.com/watch?t=107&v=l86gpYbQFzY)

that they play when they die.

* [01:49 - 01:51](https://www.youtube.com/watch?t=109&v=l86gpYbQFzY)

We've got some private variables

* [01:51 - 01:55](https://www.youtube.com/watch?t=111&v=l86gpYbQFzY)

starting off with the animator component reference.

* [01:55 - 01:57](https://www.youtube.com/watch?t=115&v=l86gpYbQFzY)

Then we've got a reference to the

* [01:57 - 01:59](https://www.youtube.com/watch?t=117&v=l86gpYbQFzY)

audio source, we've also got a reference

* [01:59 - 02:00](https://www.youtube.com/watch?t=119&v=l86gpYbQFzY)

to the hit particles.

* [02:00 - 02:03](https://www.youtube.com/watch?t=120&v=l86gpYbQFzY)

If you remember we dragged that on as a prefab

* [02:03 - 02:05](https://www.youtube.com/watch?t=123&v=l86gpYbQFzY)

and applied it as a child object.

* [02:05 - 02:08](https://www.youtube.com/watch?t=125&v=l86gpYbQFzY)

Likewise we've got a capsule collider reference.

* [02:09 - 02:12](https://www.youtube.com/watch?t=129&v=l86gpYbQFzY)

Then we've got a pair of boolean variables.

* [02:12 - 02:16](https://www.youtube.com/watch?t=132&v=l86gpYbQFzY)

We've got IsDead, which works exactly the same as before.

* [02:16 - 02:19](https://www.youtube.com/watch?t=136&v=l86gpYbQFzY)

And IsSinking, so they don't immediately start sinking

* [02:19 - 02:22](https://www.youtube.com/watch?t=139&v=l86gpYbQFzY)

because we want to see the animation so we need to have

* [02:22 - 02:24](https://www.youtube.com/watch?t=142&v=l86gpYbQFzY)

separate bools to determine

* [02:24 - 02:27](https://www.youtube.com/watch?t=144&v=l86gpYbQFzY)

whether or not they're sinking and whether they're dead.

* [02:27 - 02:30](https://www.youtube.com/watch?t=147&v=l86gpYbQFzY)

Next we've got our awake function.

* [02:31 - 02:33](https://www.youtube.com/watch?t=151&v=l86gpYbQFzY)

Which is going to setup our references as usual.

* [02:33 - 02:37](https://www.youtube.com/watch?t=153&v=l86gpYbQFzY)

The first two, as we've seen before, GetComponent,

* [02:37 - 02:40](https://www.youtube.com/watch?t=157&v=l86gpYbQFzY)

the type of the component that we're going to find

* [02:40 - 02:42](https://www.youtube.com/watch?t=160&v=l86gpYbQFzY)

animator, audio source,

* [02:42 - 02:44](https://www.youtube.com/watch?t=162&v=l86gpYbQFzY)

but with hitParticles we need to

* [02:44 - 02:48](https://www.youtube.com/watch?t=164&v=l86gpYbQFzY)

find a component in the child object hitParticles.

* [02:48 - 02:51](https://www.youtube.com/watch?t=168&v=l86gpYbQFzY)

So what GetComponentInChildren will do

* [02:51 - 02:53](https://www.youtube.com/watch?t=171&v=l86gpYbQFzY)

will go through all of the children

* [02:53 - 02:55](https://www.youtube.com/watch?t=173&v=l86gpYbQFzY)

game object and then find

* [02:55 - 02:57](https://www.youtube.com/watch?t=175&v=l86gpYbQFzY)

the first particle system and return that.

* [02:57 - 03:00](https://www.youtube.com/watch?t=177&v=l86gpYbQFzY)

Again, we've got GetComponent to find the capsule collider.

* [03:01 - 03:03](https://www.youtube.com/watch?t=181&v=l86gpYbQFzY)

Then at the end of the awake function

* [03:03 - 03:05](https://www.youtube.com/watch?t=183&v=l86gpYbQFzY)

we're setting the current health to the starting health.

* [03:05 - 03:07](https://www.youtube.com/watch?t=185&v=l86gpYbQFzY)

In update

* [03:08 - 03:10](https://www.youtube.com/watch?t=188&v=l86gpYbQFzY)

all we're doing is we're checking whether or not

* [03:11 - 03:13](https://www.youtube.com/watch?t=191&v=l86gpYbQFzY)

the enemy is supposed to be sinking or not.

* [03:13 - 03:17](https://www.youtube.com/watch?t=193&v=l86gpYbQFzY)

If it is sinking then we're going to translate

* [03:17 - 03:19](https://www.youtube.com/watch?t=197&v=l86gpYbQFzY)

the transform, and that means just move it.

* [03:20 - 03:22](https://www.youtube.com/watch?t=200&v=l86gpYbQFzY)

So we're going to move it in a negative-up

* [03:22 - 03:24](https://www.youtube.com/watch?t=202&v=l86gpYbQFzY)

direction, down.

* [03:24 - 03:27](https://www.youtube.com/watch?t=204&v=l86gpYbQFzY)

and we're going to do that by the sinkSpeed

* [03:27 - 03:31](https://www.youtube.com/watch?t=207&v=l86gpYbQFzY)

per second, so that's that Time.DeltaTime thing.

* [03:31 - 03:34](https://www.youtube.com/watch?t=211&v=l86gpYbQFzY)

If we do that then we're moving per second

* [03:34 - 03:35](https://www.youtube.com/watch?t=214&v=l86gpYbQFzY)

instead of per frame.

* [03:35 - 03:37](https://www.youtube.com/watch?t=215&v=l86gpYbQFzY)

So just a quick note about translate.

* [03:37 - 03:39](https://www.youtube.com/watch?t=217&v=l86gpYbQFzY)

Previously we used move position to move

* [03:39 - 03:41](https://www.youtube.com/watch?t=219&v=l86gpYbQFzY)

this thing but we're going to be no longer using

* [03:41 - 03:43](https://www.youtube.com/watch?t=221&v=l86gpYbQFzY)

physics when the enemies die so

* [03:43 - 03:45](https://www.youtube.com/watch?t=223&v=l86gpYbQFzY)

we can go ahead and use translate without

* [03:45 - 03:47](https://www.youtube.com/watch?t=225&v=l86gpYbQFzY)

worrying about losing sync with physics.

* [03:48 - 03:52](https://www.youtube.com/watch?t=228&v=l86gpYbQFzY)

Next we've got, again very similar

* [03:52 - 03:54](https://www.youtube.com/watch?t=232&v=l86gpYbQFzY)

function to the player's health we've got

* [03:54 - 03:56](https://www.youtube.com/watch?t=234&v=l86gpYbQFzY)

a public function, so again that means it

* [03:56 - 03:57](https://www.youtube.com/watch?t=236&v=l86gpYbQFzY)

can be called from another function

* [03:57 - 03:59](https://www.youtube.com/watch?t=237&v=l86gpYbQFzY)

and that's where we'll be calling it from.

* [03:59 - 04:00](https://www.youtube.com/watch?t=239&v=l86gpYbQFzY)

Another script.

* [04:00 - 04:01](https://www.youtube.com/watch?t=240&v=l86gpYbQFzY)

Another script.

* [04:01 - 04:03](https://www.youtube.com/watch?t=241&v=l86gpYbQFzY)

But this time we've got the integer

* [04:03 - 04:05](https://www.youtube.com/watch?t=243&v=l86gpYbQFzY)

of how much damage is going to be taken

* [04:05 - 04:08](https://www.youtube.com/watch?t=245&v=l86gpYbQFzY)

but also the hipPoint,

* [04:08 - 04:10](https://www.youtube.com/watch?t=248&v=l86gpYbQFzY)

so where has it been it?

* [04:10 - 04:12](https://www.youtube.com/watch?t=250&v=l86gpYbQFzY)

And we'll be using that hitPoint to

* [04:12 - 04:14](https://www.youtube.com/watch?t=252&v=l86gpYbQFzY)

move the particle system around the enemy

* [04:14 - 04:17](https://www.youtube.com/watch?t=254&v=l86gpYbQFzY)

so that fluff is flying out wherever it gets hit.

* [04:19 - 04:21](https://www.youtube.com/watch?t=259&v=l86gpYbQFzY)

Right, so the first thing we want to do in this function

* [04:21 - 04:24](https://www.youtube.com/watch?t=261&v=l86gpYbQFzY)

is check if the enemy is dead.

* [04:24 - 04:26](https://www.youtube.com/watch?t=264&v=l86gpYbQFzY)

If it is dead then we don't need to do

* [04:26 - 04:28](https://www.youtube.com/watch?t=266&v=l86gpYbQFzY)

anything so we're going to return out of this function.

* [04:29 - 04:32](https://www.youtube.com/watch?t=269&v=l86gpYbQFzY)

Assuming we are not dead, or the enemy is not dead

* [04:32 - 04:34](https://www.youtube.com/watch?t=272&v=l86gpYbQFzY)

we can continue on with this function.

* [04:34 - 04:36](https://www.youtube.com/watch?t=274&v=l86gpYbQFzY)

Then since we've taken damage we want to play

* [04:36 - 04:37](https://www.youtube.com/watch?t=276&v=l86gpYbQFzY)

the Hurt sound effect.

* [04:38 - 04:40](https://www.youtube.com/watch?t=278&v=l86gpYbQFzY)

We'll then loose the amount of health

* [04:40 - 04:42](https://www.youtube.com/watch?t=280&v=l86gpYbQFzY)

from our current health.

* [04:42 - 04:44](https://www.youtube.com/watch?t=282&v=l86gpYbQFzY)

Next what we're going to do is

* [04:44 - 04:48](https://www.youtube.com/watch?t=284&v=l86gpYbQFzY)

find the hitParticles, so that's the particle system

* [04:48 - 04:51](https://www.youtube.com/watch?t=288&v=l86gpYbQFzY)

Find the transform that that is on

* [04:51 - 04:54](https://www.youtube.com/watch?t=291&v=l86gpYbQFzY)

and move that position to the hitPoint.

* [04:54 - 04:57](https://www.youtube.com/watch?t=294&v=l86gpYbQFzY)

So we've got a child game object

* [04:57 - 05:00](https://www.youtube.com/watch?t=297&v=l86gpYbQFzY)

finding that position and moving it to

* [05:00 - 05:02](https://www.youtube.com/watch?t=300&v=l86gpYbQFzY)

where ever we've been hit.

* [05:02 - 05:04](https://www.youtube.com/watch?t=302&v=l86gpYbQFzY)

So note that we haven't actually defined the hitPoint

* [05:04 - 05:07](https://www.youtube.com/watch?t=304&v=l86gpYbQFzY)

but it's going to be parsed in to this TakeDamage function

* [05:07 - 05:10](https://www.youtube.com/watch?t=307&v=l86gpYbQFzY)

using that second argument, this vector3.

* [05:10 - 05:13](https://www.youtube.com/watch?t=310&v=l86gpYbQFzY)

So we're going to send it wherever we call TakeDamage

* [05:13 - 05:15](https://www.youtube.com/watch?t=313&v=l86gpYbQFzY)

and you'll see that a little later on.

* [05:15 - 05:17](https://www.youtube.com/watch?t=315&v=l86gpYbQFzY)

Okay, so after we've moved

* [05:17 - 05:19](https://www.youtube.com/watch?t=317&v=l86gpYbQFzY)

the position of the particle system

* [05:19 - 05:23](https://www.youtube.com/watch?t=319&v=l86gpYbQFzY)

we can then play the particle system, so the fluff starts flying out.

* [05:26 - 05:28](https://www.youtube.com/watch?t=326&v=l86gpYbQFzY)

Last in this function, we're going to check

* [05:28 - 05:30](https://www.youtube.com/watch?t=328&v=l86gpYbQFzY)

if our current health is less than

* [05:30 - 05:32](https://www.youtube.com/watch?t=330&v=l86gpYbQFzY)

or equal to 0.

* [05:32 - 05:35](https://www.youtube.com/watch?t=332&v=l86gpYbQFzY)

If we've run out of health then we'll use the Death function.

* [05:36 - 05:38](https://www.youtube.com/watch?t=336&v=l86gpYbQFzY)

So the Death function.

* [05:39 - 05:42](https://www.youtube.com/watch?t=339&v=l86gpYbQFzY)

First of all we set isDead equals to true.

* [05:43 - 05:47](https://www.youtube.com/watch?t=343&v=l86gpYbQFzY)

Then we set the capsule collider to a trigger.

* [05:47 - 05:49](https://www.youtube.com/watch?t=347&v=l86gpYbQFzY)

So what that means is because you don't

* [05:49 - 05:51](https://www.youtube.com/watch?t=349&v=l86gpYbQFzY)

actually physically hit triggers

* [05:51 - 05:55](https://www.youtube.com/watch?t=351&v=l86gpYbQFzY)

if the player is running along mowing down enemies

* [05:55 - 05:57](https://www.youtube.com/watch?t=355&v=l86gpYbQFzY)

then when they die they won't become

* [05:57 - 05:59](https://www.youtube.com/watch?t=357&v=l86gpYbQFzY)

an obstacle any more, it can keep on moving

* [05:59 - 06:01](https://www.youtube.com/watch?t=359&v=l86gpYbQFzY)

and keep on mowing through them.

* [06:02 - 06:04](https://www.youtube.com/watch?t=362&v=l86gpYbQFzY)

We set the animator trigger Dead

* [06:04 - 06:06](https://www.youtube.com/watch?t=364&v=l86gpYbQFzY)

so the enemy knows it's dead

* [06:06 - 06:08](https://www.youtube.com/watch?t=366&v=l86gpYbQFzY)

it performs it's Dead animation.

* [06:09 - 06:11](https://www.youtube.com/watch?t=369&v=l86gpYbQFzY)

And lastly we're going to set the audio

* [06:11 - 06:14](https://www.youtube.com/watch?t=371&v=l86gpYbQFzY)

source to play the Death clip.

* [06:14 - 06:16](https://www.youtube.com/watch?t=374&v=l86gpYbQFzY)

So we change the clip that it's got to play to Death

* [06:16 - 06:17](https://www.youtube.com/watch?t=376&v=l86gpYbQFzY)

and then make it play.

* [06:17 - 06:19](https://www.youtube.com/watch?t=377&v=l86gpYbQFzY)

Okay, so we've got a public function here

* [06:19 - 06:21](https://www.youtube.com/watch?t=379&v=l86gpYbQFzY)

called StartSinking and we'll discuss why it's

* [06:21 - 06:23](https://www.youtube.com/watch?t=381&v=l86gpYbQFzY)

public in a minute but for now we'll just

* [06:23 - 06:25](https://www.youtube.com/watch?t=383&v=l86gpYbQFzY)

go through what it does.

* [06:26 - 06:28](https://www.youtube.com/watch?t=386&v=l86gpYbQFzY)

In this we're going to fund references

* [06:28 - 06:29](https://www.youtube.com/watch?t=388&v=l86gpYbQFzY)

to the nav mesh agent

* [06:30 - 06:32](https://www.youtube.com/watch?t=390&v=l86gpYbQFzY)

and disable it.

* [06:32 - 06:34](https://www.youtube.com/watch?t=392&v=l86gpYbQFzY)

And then we're going to find a reference to the

* [06:34 - 06:38](https://www.youtube.com/watch?t=394&v=l86gpYbQFzY)

rigidbody component and set it to isKinematic

* [06:38 - 06:41](https://www.youtube.com/watch?t=398&v=l86gpYbQFzY)

The reason we're going to set it to kinematic is

* [06:41 - 06:43](https://www.youtube.com/watch?t=401&v=l86gpYbQFzY)

that when you move a collider

* [06:43 - 06:45](https://www.youtube.com/watch?t=403&v=l86gpYbQFzY)

in the scene Unity will try and

* [06:45 - 06:47](https://www.youtube.com/watch?t=405&v=l86gpYbQFzY)

recalculate all the static geometry

* [06:47 - 06:49](https://www.youtube.com/watch?t=407&v=l86gpYbQFzY)

because it thinks 'okay, the level's changed,

* [06:49 - 06:51](https://www.youtube.com/watch?t=409&v=l86gpYbQFzY)

I need to rethink about this.

* [06:52 - 06:54](https://www.youtube.com/watch?t=412&v=l86gpYbQFzY)

But if you've got a kinematic rigidbody

* [06:54 - 06:57](https://www.youtube.com/watch?t=414&v=l86gpYbQFzY)

and you're translating this object

* [06:57 - 07:00](https://www.youtube.com/watch?t=417&v=l86gpYbQFzY)

then it will ignore it, so that's why we're doing that.

* [07:01 - 07:05](https://www.youtube.com/watch?t=421&v=l86gpYbQFzY)

Real quick here, we see GetComponent

* [07:05 - 07:07](https://www.youtube.com/watch?t=425&v=l86gpYbQFzY)

.enabled = false;

* [07:07 - 07:09](https://www.youtube.com/watch?t=427&v=l86gpYbQFzY)

so if we were trying to turn

* [07:09 - 07:11](https://www.youtube.com/watch?t=429&v=l86gpYbQFzY)

off a game object

* [07:11 - 07:14](https://www.youtube.com/watch?t=431&v=l86gpYbQFzY)

we say .setACtive

* [07:14 - 07:16](https://www.youtube.com/watch?t=434&v=l86gpYbQFzY)

and in parenthesis say false.

* [07:16 - 07:18](https://www.youtube.com/watch?t=436&v=l86gpYbQFzY)

Nav mesh agent's a component so we say

* [07:18 - 07:20](https://www.youtube.com/watch?t=438&v=l86gpYbQFzY)

.enabled, so just keep that in mind.

* [07:20 - 07:23](https://www.youtube.com/watch?t=440&v=l86gpYbQFzY)

If you see .setActive = false

* [07:23 - 07:25](https://www.youtube.com/watch?t=443&v=l86gpYbQFzY)

that's a game object and we're turning the whole

* [07:25 - 07:27](https://www.youtube.com/watch?t=445&v=l86gpYbQFzY)

game object off.

* [07:27 - 07:29](https://www.youtube.com/watch?t=447&v=l86gpYbQFzY)

Here we're doing .enabled = false

* [07:29 - 07:31](https://www.youtube.com/watch?t=449&v=l86gpYbQFzY)

That means I'm not turning off the whole game object

* [07:31 - 07:35](https://www.youtube.com/watch?t=451&v=l86gpYbQFzY)

just this one component of that game object.

* [07:36 - 07:39](https://www.youtube.com/watch?t=456&v=l86gpYbQFzY)

Since we're starting to sink isSinking is true.

* [07:39 - 07:43](https://www.youtube.com/watch?t=459&v=l86gpYbQFzY)

And lastly we're going to destroy the game object

* [07:43 - 07:46](https://www.youtube.com/watch?t=463&v=l86gpYbQFzY)

after 2 seconds, so basically

* [07:46 - 07:48](https://www.youtube.com/watch?t=466&v=l86gpYbQFzY)

it's started sinking, it's going through the floor,

* [07:48 - 07:50](https://www.youtube.com/watch?t=468&v=l86gpYbQFzY)

after 2 seconds we're not going to see it any more

* [07:50 - 07:52](https://www.youtube.com/watch?t=470&v=l86gpYbQFzY)

we can get rid of it, so we'll destroy the game object.

* [07:52 - 07:53](https://www.youtube.com/watch?t=472&v=l86gpYbQFzY)

And that's the end of that function

* [07:53 - 07:55](https://www.youtube.com/watch?t=473&v=l86gpYbQFzY)

and the end of this script as well.

* [07:55 - 07:57](https://www.youtube.com/watch?t=475&v=l86gpYbQFzY)

When we're done with that we can hop back over

* [07:57 - 07:59](https://www.youtube.com/watch?t=477&v=l86gpYbQFzY)

in to Unity here.

* [08:00 - 08:03](https://www.youtube.com/watch?t=480&v=l86gpYbQFzY)

The enemy now has health and so one of the

* [08:03 - 08:05](https://www.youtube.com/watch?t=483&v=l86gpYbQFzY)

things that we want to do is we

* [08:05 - 08:08](https://www.youtube.com/watch?t=485&v=l86gpYbQFzY)

want to make the enemy's

* [08:08 - 08:10](https://www.youtube.com/watch?t=488&v=l86gpYbQFzY)

ability to attack dependent on whether or not

* [08:10 - 08:11](https://www.youtube.com/watch?t=490&v=l86gpYbQFzY)

the enemy is alive.

* [08:11 - 08:13](https://www.youtube.com/watch?t=491&v=l86gpYbQFzY)

Sorry to interrupt you Mike, I've just remembered that we've

* [08:13 - 08:15](https://www.youtube.com/watch?t=493&v=l86gpYbQFzY)

missed something out.

* [08:15 - 08:17](https://www.youtube.com/watch?t=495&v=l86gpYbQFzY)

So we had that StartSinking function

* [08:17 - 08:19](https://www.youtube.com/watch?t=497&v=l86gpYbQFzY)

and it was public

* [08:19 - 08:21](https://www.youtube.com/watch?t=499&v=l86gpYbQFzY)

but we never called it.

* [08:21 - 08:22](https://www.youtube.com/watch?t=501&v=l86gpYbQFzY)

The reason we never called it is because

* [08:22 - 08:24](https://www.youtube.com/watch?t=502&v=l86gpYbQFzY)

it's on an animation event.

* [08:25 - 08:28](https://www.youtube.com/watch?t=505&v=l86gpYbQFzY)

So all these enemies, they have an animation event

* [08:28 - 08:30](https://www.youtube.com/watch?t=508&v=l86gpYbQFzY)

where they flop and then die.

* [08:31 - 08:33](https://www.youtube.com/watch?t=511&v=l86gpYbQFzY)

And what we can do in Unity is say

* [08:33 - 08:35](https://www.youtube.com/watch?t=513&v=l86gpYbQFzY)

somewhere along the line of that animation

* [08:35 - 08:37](https://www.youtube.com/watch?t=515&v=l86gpYbQFzY)

we're going to say 'at this point

* [08:37 - 08:40](https://www.youtube.com/watch?t=517&v=l86gpYbQFzY)

try and look for this function

* [08:40 - 08:43](https://www.youtube.com/watch?t=520&v=l86gpYbQFzY)

on the game object, somewhere on the game object

* [08:43 - 08:46](https://www.youtube.com/watch?t=523&v=l86gpYbQFzY)

there will be a function called StartSinking.

* [08:46 - 08:48](https://www.youtube.com/watch?t=526&v=l86gpYbQFzY)

So it'll look for that and then if

* [08:48 - 08:50](https://www.youtube.com/watch?t=528&v=l86gpYbQFzY)

it finds it it'll play that function.

* [08:51 - 08:53](https://www.youtube.com/watch?t=531&v=l86gpYbQFzY)

This was setup already?

* [08:53 - 08:55](https://www.youtube.com/watch?t=533&v=l86gpYbQFzY)

Yes, this isn't something that you have to do,

* [08:55 - 08:57](https://www.youtube.com/watch?t=535&v=l86gpYbQFzY)

this is something that we've setup for you.

* [09:00 - 09:03](https://www.youtube.com/watch?t=540&v=l86gpYbQFzY)

So this is something that is already there,

* [09:03 - 09:05](https://www.youtube.com/watch?t=543&v=l86gpYbQFzY)

and basically what this says is at this

* [09:05 - 09:07](https://www.youtube.com/watch?t=545&v=l86gpYbQFzY)

mark, which is something that is already in the animation

* [09:07 - 09:09](https://www.youtube.com/watch?t=547&v=l86gpYbQFzY)

it's not anything that you guys have to do,

* [09:09 - 09:11](https://www.youtube.com/watch?t=549&v=l86gpYbQFzY)

it's going to attempt to call a method called

* [09:11 - 09:12](https://www.youtube.com/watch?t=551&v=l86gpYbQFzY)

StartSinking.

* [09:12 - 09:14](https://www.youtube.com/watch?t=552&v=l86gpYbQFzY)

Now up until this point there has been

* [09:14 - 09:15](https://www.youtube.com/watch?t=554&v=l86gpYbQFzY)

no such method, alright.

* [09:15 - 09:17](https://www.youtube.com/watch?t=555&v=l86gpYbQFzY)

But now we've created one and we've added

* [09:17 - 09:19](https://www.youtube.com/watch?t=557&v=l86gpYbQFzY)

it so now it knows

* [09:19 - 09:21](https://www.youtube.com/watch?t=559&v=l86gpYbQFzY)

I have a method called StartSinking and

* [09:21 - 09:23](https://www.youtube.com/watch?t=561&v=l86gpYbQFzY)

that will happen when it's time comes.

* [09:25 - 09:27](https://www.youtube.com/watch?t=565&v=l86gpYbQFzY)

Normally if the animation were to play

* [09:27 - 09:29](https://www.youtube.com/watch?t=567&v=l86gpYbQFzY)

and that function were to not be there you would

* [09:29 - 09:31](https://www.youtube.com/watch?t=569&v=l86gpYbQFzY)

get an error saying 'hey, I'm trying to call this function

* [09:31 - 09:32](https://www.youtube.com/watch?t=571&v=l86gpYbQFzY)

and one does not exist.

* [09:32 - 09:34](https://www.youtube.com/watch?t=572&v=l86gpYbQFzY)

We did not get an error because we have yet to

* [09:34 - 09:36](https://www.youtube.com/watch?t=574&v=l86gpYbQFzY)

have any way of killing the enemy.

* [09:36 - 09:38](https://www.youtube.com/watch?t=576&v=l86gpYbQFzY)

If we had we would have seen an error but

* [09:38 - 09:40](https://www.youtube.com/watch?t=578&v=l86gpYbQFzY)

if we don't then we do not see an error.

* [09:40 - 09:45](https://www.youtube.com/watch?t=580&v=l86gpYbQFzY)

The function was public and so this animation will

* [09:45 - 09:47](https://www.youtube.com/watch?t=585&v=l86gpYbQFzY)

automatically call that function when the time comes.

* [09:47 - 09:49](https://www.youtube.com/watch?t=587&v=l86gpYbQFzY)

Animation events are really useful,

* [09:49 - 09:52](https://www.youtube.com/watch?t=589&v=l86gpYbQFzY)

you can use them for all kinds of things.

* [09:52 - 09:54](https://www.youtube.com/watch?t=592&v=l86gpYbQFzY)

A real common use would be footsteps

* [09:54 - 09:56](https://www.youtube.com/watch?t=594&v=l86gpYbQFzY)

if you had a single function to call a

* [09:56 - 09:58](https://www.youtube.com/watch?t=596&v=l86gpYbQFzY)

footstep at a particular point in an animation

* [09:58 - 10:00](https://www.youtube.com/watch?t=598&v=l86gpYbQFzY)

because obviously you can pick a particular frame

* [10:00 - 10:02](https://www.youtube.com/watch?t=600&v=l86gpYbQFzY)

where you want this to happen.

* [10:02 - 10:04](https://www.youtube.com/watch?t=602&v=l86gpYbQFzY)

We've got this fairly roughly placed

* [10:04 - 10:06](https://www.youtube.com/watch?t=604&v=l86gpYbQFzY)

and it just means that as soon as he just leaps up

* [10:06 - 10:08](https://www.youtube.com/watch?t=606&v=l86gpYbQFzY)

we'll start sending him down as well

* [10:08 - 10:10](https://www.youtube.com/watch?t=608&v=l86gpYbQFzY)

as his falling animation,

* [10:10 - 10:12](https://www.youtube.com/watch?t=610&v=l86gpYbQFzY)

which actually means that we're not getting the bounce on

* [10:12 - 10:14](https://www.youtube.com/watch?t=612&v=l86gpYbQFzY)

on the floor, but we could move it along if we wanted

* [10:14 - 10:16](https://www.youtube.com/watch?t=614&v=l86gpYbQFzY)

to but we're not going to bother doing that,

* [10:16 - 10:18](https://www.youtube.com/watch?t=616&v=l86gpYbQFzY)

you can play around with that later on.

* [10:20 - 10:22](https://www.youtube.com/watch?t=620&v=l86gpYbQFzY)

Now that we have the Enemy Health script

* [10:22 - 10:24](https://www.youtube.com/watch?t=622&v=l86gpYbQFzY)

it's important for us to pair the Enemy Attack script

* [10:24 - 10:26](https://www.youtube.com/watch?t=624&v=l86gpYbQFzY)

to that so that the enemy does not

* [10:26 - 10:28](https://www.youtube.com/watch?t=626&v=l86gpYbQFzY)

attack once they're already dead.

* [10:28 - 10:30](https://www.youtube.com/watch?t=628&v=l86gpYbQFzY)

What we'd like to do is edit

* [10:30 - 10:33](https://www.youtube.com/watch?t=630&v=l86gpYbQFzY)

the Enemy Attack script and uncomment

* [10:33 - 10:35](https://www.youtube.com/watch?t=633&v=l86gpYbQFzY)

those lines that we previously saw commented.

* [10:35 - 10:37](https://www.youtube.com/watch?t=635&v=l86gpYbQFzY)

Now we could locate the script in the project view

* [10:37 - 10:38](https://www.youtube.com/watch?t=637&v=l86gpYbQFzY)

and double click it and open it

* [10:38 - 10:40](https://www.youtube.com/watch?t=638&v=l86gpYbQFzY)

but I just want to run through another way that we

* [10:40 - 10:42](https://www.youtube.com/watch?t=640&v=l86gpYbQFzY)

could open that script.

* [10:42 - 10:46](https://www.youtube.com/watch?t=642&v=l86gpYbQFzY)

What I'm going to do is click on the Zombunny,

* [10:46 - 10:48](https://www.youtube.com/watch?t=646&v=l86gpYbQFzY)

and I am going to find the

* [10:48 - 10:50](https://www.youtube.com/watch?t=648&v=l86gpYbQFzY)

Enemy Attack script, the Enemy Attack Script.

* [10:50 - 10:55](https://www.youtube.com/watch?t=650&v=l86gpYbQFzY)

And of the script components the first property is always

* [10:55 - 10:57](https://www.youtube.com/watch?t=655&v=l86gpYbQFzY)

the script itself.

* [10:57 - 10:59](https://www.youtube.com/watch?t=657&v=l86gpYbQFzY)

Every script component has a first property called

* [10:59 - 11:02](https://www.youtube.com/watch?t=659&v=l86gpYbQFzY)

Script and the value of that is itself.

* [11:02 - 11:04](https://www.youtube.com/watch?t=662&v=l86gpYbQFzY)

So if I click on it what it does is highlight

* [11:04 - 11:06](https://www.youtube.com/watch?t=664&v=l86gpYbQFzY)

for me in the project view that script.

* [11:06 - 11:07](https://www.youtube.com/watch?t=666&v=l86gpYbQFzY)

So I'm like 'hey, which script is this?',

* [11:07 - 11:08](https://www.youtube.com/watch?t=667&v=l86gpYbQFzY)

you click on it, there it is.

* [11:08 - 11:10](https://www.youtube.com/watch?t=668&v=l86gpYbQFzY)

But I can then double click on it here

* [11:10 - 11:12](https://www.youtube.com/watch?t=670&v=l86gpYbQFzY)

inside this property and it again will

* [11:12 - 11:14](https://www.youtube.com/watch?t=672&v=l86gpYbQFzY)

open up inside Mono Develop.

* [11:14 - 11:16](https://www.youtube.com/watch?t=674&v=l86gpYbQFzY)

So that's another way to open the script up.

* [11:16 - 11:18](https://www.youtube.com/watch?t=676&v=l86gpYbQFzY)

So this is now a part that you're all gong to want to

* [11:18 - 11:20](https://www.youtube.com/watch?t=678&v=l86gpYbQFzY)

follow along with because we're now going to remove

* [11:20 - 11:22](https://www.youtube.com/watch?t=680&v=l86gpYbQFzY)

this commenting while we explain what

* [11:22 - 11:24](https://www.youtube.com/watch?t=682&v=l86gpYbQFzY)

the comments were for.

* [11:24 - 11:26](https://www.youtube.com/watch?t=684&v=l86gpYbQFzY)

I'm going to come up to the top here

* [11:26 - 11:28](https://www.youtube.com/watch?t=686&v=l86gpYbQFzY)

and the first bit of commenting I see

* [11:28 - 11:30](https://www.youtube.com/watch?t=688&v=l86gpYbQFzY)

is a commented out variable

* [11:30 - 11:32](https://www.youtube.com/watch?t=690&v=l86gpYbQFzY)

that references EnemyHealth.

* [11:32 - 11:34](https://www.youtube.com/watch?t=692&v=l86gpYbQFzY)

Obviously we had to comment that out before

* [11:34 - 11:37](https://www.youtube.com/watch?t=694&v=l86gpYbQFzY)

because EnemyHealth didn't exist on the enemy yet

* [11:37 - 11:38](https://www.youtube.com/watch?t=697&v=l86gpYbQFzY)

so we had to keep that commented out.

* [11:38 - 11:40](https://www.youtube.com/watch?t=698&v=l86gpYbQFzY)

Now we're going to uncomment it so we can now have a

* [11:40 - 11:43](https://www.youtube.com/watch?t=700&v=l86gpYbQFzY)

reference to the enemy health script.

* [11:43 - 11:45](https://www.youtube.com/watch?t=703&v=l86gpYbQFzY)

Next we're going to go to our awake function,

* [11:45 - 11:46](https://www.youtube.com/watch?t=705&v=l86gpYbQFzY)

and again, since we have this variable,

* [11:46 - 11:48](https://www.youtube.com/watch?t=706&v=l86gpYbQFzY)

we now have to get that reference and we get that

* [11:48 - 11:51](https://www.youtube.com/watch?t=708&v=l86gpYbQFzY)

by saying enemyHealth = GetComponent,

* [11:51 - 11:54](https://www.youtube.com/watch?t=711&v=l86gpYbQFzY)

and the component name is the name of the script,

* [11:54 - 11:56](https://www.youtube.com/watch?t=714&v=l86gpYbQFzY)

which is EnemyHealth.

* [11:56 - 11:58](https://www.youtube.com/watch?t=716&v=l86gpYbQFzY)

And then we're going to come down here towards the bottom

* [11:58 - 12:01](https://www.youtube.com/watch?t=718&v=l86gpYbQFzY)

and we're going to notice this.

* [12:01 - 12:05](https://www.youtube.com/watch?t=721&v=l86gpYbQFzY)

And this is not the commenting you've seen before.

* [12:05 - 12:07](https://www.youtube.com/watch?t=725&v=l86gpYbQFzY)

There we go, it's about as close as it'll let me get.

* [12:07 - 12:10](https://www.youtube.com/watch?t=727&v=l86gpYbQFzY)

So this is called a Block Comment

* [12:10 - 12:12](https://www.youtube.com/watch?t=730&v=l86gpYbQFzY)

and what block comments enable me to do is

* [12:12 - 12:14](https://www.youtube.com/watch?t=732&v=l86gpYbQFzY)

comment many, many, many lines

* [12:14 - 12:17](https://www.youtube.com/watch?t=734&v=l86gpYbQFzY)

or pieces inside a line

* [12:17 - 12:19](https://www.youtube.com/watch?t=737&v=l86gpYbQFzY)

or whatever, right? So what we have here

* [12:19 - 12:21](https://www.youtube.com/watch?t=739&v=l86gpYbQFzY)

is what's called a Block Comment.

* [12:21 - 12:23](https://www.youtube.com/watch?t=741&v=l86gpYbQFzY)

And we can see that here's

* [12:23 - 12:25](https://www.youtube.com/watch?t=743&v=l86gpYbQFzY)

the start of the block comment,

* [12:25 - 12:26](https://www.youtube.com/watch?t=745&v=l86gpYbQFzY)

and here is the end of the block comment.

* [12:26 - 12:32](https://www.youtube.com/watch?t=746&v=l86gpYbQFzY)

So it's /\* all the way through to \*/.

* [12:32 - 12:34](https://www.youtube.com/watch?t=752&v=l86gpYbQFzY)

And anything between there is commented out.

* [12:34 - 12:36](https://www.youtube.com/watch?t=754&v=l86gpYbQFzY)

And you'll see that these parenthesis

* [12:36 - 12:38](https://www.youtube.com/watch?t=756&v=l86gpYbQFzY)

or parentheses is not commented out

* [12:38 - 12:40](https://www.youtube.com/watch?t=758&v=l86gpYbQFzY)

because only the things between the block

* [12:40 - 12:41](https://www.youtube.com/watch?t=760&v=l86gpYbQFzY)

comments get commented out.

* [12:41 - 12:44](https://www.youtube.com/watch?t=761&v=l86gpYbQFzY)

So what we want to do is remove the block comment.

* [12:44 - 12:46](https://www.youtube.com/watch?t=764&v=l86gpYbQFzY)

So when we start to remove this

* [12:46 - 12:47](https://www.youtube.com/watch?t=766&v=l86gpYbQFzY)

we'll see everything gets commented out and then

* [12:47 - 12:49](https://www.youtube.com/watch?t=767&v=l86gpYbQFzY)

nothing's commented out.

* [12:49 - 12:51](https://www.youtube.com/watch?t=769&v=l86gpYbQFzY)

So what this line says now

* [12:51 - 12:52](https://www.youtube.com/watch?t=771&v=l86gpYbQFzY)

if you recall previously it says

* [12:52 - 12:54](https://www.youtube.com/watch?t=772&v=l86gpYbQFzY)

'hey, if it's time to attack

* [12:54 - 12:56](https://www.youtube.com/watch?t=774&v=l86gpYbQFzY)

and the player is in range

* [12:56 - 12:58](https://www.youtube.com/watch?t=776&v=l86gpYbQFzY)

we attack the player'.

* [12:58 - 13:00](https://www.youtube.com/watch?t=778&v=l86gpYbQFzY)

Well there's one more step, one more decision

* [13:00 - 13:02](https://www.youtube.com/watch?t=780&v=l86gpYbQFzY)

you have to make, we have to say

* [13:02 - 13:03](https://www.youtube.com/watch?t=782&v=l86gpYbQFzY)

'if it's time to attack

* [13:03 - 13:06](https://www.youtube.com/watch?t=783&v=l86gpYbQFzY)

and the player is in range

* [13:06 - 13:08](https://www.youtube.com/watch?t=786&v=l86gpYbQFzY)

and we're not dead'

* [13:08 - 13:10](https://www.youtube.com/watch?t=788&v=l86gpYbQFzY)

and at that point we attack.

* [13:10 - 13:12](https://www.youtube.com/watch?t=790&v=l86gpYbQFzY)

So at this point now with all of that stuff

* [13:12 - 13:14](https://www.youtube.com/watch?t=792&v=l86gpYbQFzY)

uncommented now the enemy will attack the player

* [13:14 - 13:16](https://www.youtube.com/watch?t=794&v=l86gpYbQFzY)

correctly like they had been and they'll

* [13:16 - 13:17](https://www.youtube.com/watch?t=796&v=l86gpYbQFzY)

also stop when they're dead,

* [13:17 - 13:21](https://www.youtube.com/watch?t=797&v=l86gpYbQFzY)

which is obviously an important part of this whole dynamic.

* [13:21 - 13:23](https://www.youtube.com/watch?t=801&v=l86gpYbQFzY)

Be sure to get that stuff done. When you're finished

* [13:23 - 13:25](https://www.youtube.com/watch?t=803&v=l86gpYbQFzY)

be sure to save,

* [13:25 - 13:27](https://www.youtube.com/watch?t=805&v=l86gpYbQFzY)

save the script and return,

* [13:27 - 13:29](https://www.youtube.com/watch?t=807&v=l86gpYbQFzY)

which will bring us back in to Unity.

* [13:31 - 13:35](https://www.youtube.com/watch?t=811&v=l86gpYbQFzY)

The enemy is cool, we can leave it alone for now.

* [13:35 - 13:37](https://www.youtube.com/watch?t=815&v=l86gpYbQFzY)

Now let's go ahead and get this

* [13:37 - 13:39](https://www.youtube.com/watch?t=817&v=l86gpYbQFzY)

player ready to rock and roll.

* [13:39 - 13:40](https://www.youtube.com/watch?t=819&v=l86gpYbQFzY)

There's a few things that we're going to need to do.

* [13:40 - 13:42](https://www.youtube.com/watch?t=820&v=l86gpYbQFzY)

The player already has this mesh and the mesh

* [13:42 - 13:44](https://www.youtube.com/watch?t=822&v=l86gpYbQFzY)

has a gun, so the player is already setup

* [13:44 - 13:46](https://www.youtube.com/watch?t=824&v=l86gpYbQFzY)

with his weapon of choice so what we want to

* [13:46 - 13:49](https://www.youtube.com/watch?t=826&v=l86gpYbQFzY)

do is we want to make it behave appropriately.

* [13:49 - 13:51](https://www.youtube.com/watch?t=829&v=l86gpYbQFzY)

So there's some stuff we want to add to it.

* [13:51 - 13:53](https://www.youtube.com/watch?t=831&v=l86gpYbQFzY)

The first is we're going to add a particle component

* [13:53 - 13:55](https://www.youtube.com/watch?t=833&v=l86gpYbQFzY)

which is going to enable the gun to

* [13:55 - 13:58](https://www.youtube.com/watch?t=835&v=l86gpYbQFzY)

spit fire, which makes it kinda fun.

* [13:58 - 14:00](https://www.youtube.com/watch?t=838&v=l86gpYbQFzY)

We're also going to add the ability for

* [14:00 - 14:03](https://www.youtube.com/watch?t=840&v=l86gpYbQFzY)

it to have sound so we can hear

* [14:03 - 14:04](https://www.youtube.com/watch?t=843&v=l86gpYbQFzY)

when the player is firing.

* [14:04 - 14:06](https://www.youtube.com/watch?t=844&v=l86gpYbQFzY)

We're going to add a light so that the player

* [14:06 - 14:08](https://www.youtube.com/watch?t=846&v=l86gpYbQFzY)

illuminates the scene when firing

* [14:08 - 14:10](https://www.youtube.com/watch?t=848&v=l86gpYbQFzY)

and then we're going to add a line renderer

* [14:10 - 14:12](https://www.youtube.com/watch?t=850&v=l86gpYbQFzY)

and the line renderer is actually going to be that

* [14:12 - 14:14](https://www.youtube.com/watch?t=852&v=l86gpYbQFzY)

line that we're firing out

* [14:14 - 14:16](https://www.youtube.com/watch?t=854&v=l86gpYbQFzY)

to make it look like we're firing bullets

* [14:16 - 14:18](https://www.youtube.com/watch?t=856&v=l86gpYbQFzY)

or lasers or whatever,

* [14:18 - 14:19](https://www.youtube.com/watch?t=858&v=l86gpYbQFzY)

and all of these things are going to make this

* [14:19 - 14:23](https://www.youtube.com/watch?t=859&v=l86gpYbQFzY)

a much more fun look and feel to the game.

* [14:23 - 14:25](https://www.youtube.com/watch?t=863&v=l86gpYbQFzY)

So what we're going to do is go to the prefabs folder

* [14:25 - 14:28](https://www.youtube.com/watch?t=865&v=l86gpYbQFzY)

and we're going to locate gunParticles.

* [14:28 - 14:31](https://www.youtube.com/watch?t=868&v=l86gpYbQFzY)

Unlike the hitParticles of the enemy

* [14:31 - 14:33](https://www.youtube.com/watch?t=871&v=l86gpYbQFzY)

we are not going to click and drag this prefab

* [14:33 - 14:35](https://www.youtube.com/watch?t=873&v=l86gpYbQFzY)

anywhere near the player.

* [14:35 - 14:37](https://www.youtube.com/watch?t=875&v=l86gpYbQFzY)

Instead we are going to copy

* [14:37 - 14:39](https://www.youtube.com/watch?t=877&v=l86gpYbQFzY)

a component off of it.

* [14:39 - 14:41](https://www.youtube.com/watch?t=879&v=l86gpYbQFzY)

So we're not going to use this prefab

* [14:41 - 14:43](https://www.youtube.com/watch?t=881&v=l86gpYbQFzY)

we're just going to use a piece of this prefab.

* [14:43 - 14:45](https://www.youtube.com/watch?t=883&v=l86gpYbQFzY)

So if we look over here in the inspector

* [14:45 - 14:47](https://www.youtube.com/watch?t=885&v=l86gpYbQFzY)

we see the particle system that is

* [14:47 - 14:50](https://www.youtube.com/watch?t=887&v=l86gpYbQFzY)

a part of that gunParticles

* [14:50 - 14:53](https://www.youtube.com/watch?t=890&v=l86gpYbQFzY)

and I can click the cog, or gear

* [14:53 - 14:57](https://www.youtube.com/watch?t=893&v=l86gpYbQFzY)

right here and I can select Copy Component.

* [14:57 - 14:59](https://www.youtube.com/watch?t=897&v=l86gpYbQFzY)

I'm not actually interested in the game object or the

* [14:59 - 15:01](https://www.youtube.com/watch?t=899&v=l86gpYbQFzY)

prefab I'm interested in the component that's on it.

* [15:01 - 15:03](https://www.youtube.com/watch?t=901&v=l86gpYbQFzY)

Once I've copied that component

* [15:03 - 15:05](https://www.youtube.com/watch?t=903&v=l86gpYbQFzY)

I'm going to go to the player in my hierarchy

* [15:05 - 15:07](https://www.youtube.com/watch?t=905&v=l86gpYbQFzY)

and I'm going to expand it.

* [15:07 - 15:10](https://www.youtube.com/watch?t=907&v=l86gpYbQFzY)

And I'm going to look for GunBarrelEnd.

* [15:10 - 15:12](https://www.youtube.com/watch?t=910&v=l86gpYbQFzY)

Since the player has a collider

* [15:12 - 15:14](https://www.youtube.com/watch?t=912&v=l86gpYbQFzY)

and the player has all these pieces and parts

* [15:14 - 15:16](https://www.youtube.com/watch?t=914&v=l86gpYbQFzY)

I'm actually really interested in the

* [15:16 - 15:18](https://www.youtube.com/watch?t=916&v=l86gpYbQFzY)

tip of the gun so that I can

* [15:18 - 15:20](https://www.youtube.com/watch?t=918&v=l86gpYbQFzY)

align bullets and everything with

* [15:20 - 15:22](https://www.youtube.com/watch?t=920&v=l86gpYbQFzY)

the tip of the gun and get

* [15:22 - 15:25](https://www.youtube.com/watch?t=922&v=l86gpYbQFzY)

shooting to happen the way we want it to.

* [15:26 - 15:29](https://www.youtube.com/watch?t=926&v=l86gpYbQFzY)

With GunBarrelEnd not Gun,

* [15:29 - 15:31](https://www.youtube.com/watch?t=929&v=l86gpYbQFzY)

not Player, GunBarrelEnd selected

* [15:31 - 15:33](https://www.youtube.com/watch?t=931&v=l86gpYbQFzY)

in the hierarchy I need to

* [15:33 - 15:35](https://www.youtube.com/watch?t=933&v=l86gpYbQFzY)

locate a cog, there's always a cog

* [15:35 - 15:37](https://www.youtube.com/watch?t=935&v=l86gpYbQFzY)

in the upper right hand corner of the transform component.

* [15:38 - 15:40](https://www.youtube.com/watch?t=938&v=l86gpYbQFzY)

And I'm going to click that and I'm going to select

* [15:40 - 15:42](https://www.youtube.com/watch?t=940&v=l86gpYbQFzY)

Component As New.

* [15:42 - 15:43](https://www.youtube.com/watch?t=942&v=l86gpYbQFzY)

And there's my particles.

* [15:43 - 15:45](https://www.youtube.com/watch?t=943&v=l86gpYbQFzY)

So at this point the particles are

* [15:45 - 15:47](https://www.youtube.com/watch?t=945&v=l86gpYbQFzY)

on the end of the gun.

* [15:47 - 15:49](https://www.youtube.com/watch?t=947&v=l86gpYbQFzY)

Now they're not set to play.

* [15:49 - 15:51](https://www.youtube.com/watch?t=949&v=l86gpYbQFzY)

We going to use scripts to say when

* [15:51 - 15:53](https://www.youtube.com/watch?t=951&v=l86gpYbQFzY)

those particles should start firing off.

* [15:53 - 15:56](https://www.youtube.com/watch?t=953&v=l86gpYbQFzY)

So now we have the particle system on the gun.

* [15:56 - 16:00](https://www.youtube.com/watch?t=956&v=l86gpYbQFzY)

Now let's minimise the particle system by

* [16:00 - 16:02](https://www.youtube.com/watch?t=960&v=l86gpYbQFzY)

clicking the little arrow next to it

* [16:02 - 16:04](https://www.youtube.com/watch?t=962&v=l86gpYbQFzY)

because the particle system itself takes up so much space

* [16:04 - 16:06](https://www.youtube.com/watch?t=964&v=l86gpYbQFzY)

so we're just going to collapse that down

* [16:06 - 16:08](https://www.youtube.com/watch?t=966&v=l86gpYbQFzY)

so that we have some room to work.

* [16:08 - 16:10](https://www.youtube.com/watch?t=968&v=l86gpYbQFzY)

So we have our particle system and the next thing

* [16:10 - 16:11](https://www.youtube.com/watch?t=970&v=l86gpYbQFzY)

we want is a Line Renderer.

* [16:11 - 16:13](https://www.youtube.com/watch?t=971&v=l86gpYbQFzY)

The line renderer is going to be the visual

* [16:13 - 16:15](https://www.youtube.com/watch?t=973&v=l86gpYbQFzY)

component of shooting and we're going to add that

* [16:15 - 16:18](https://www.youtube.com/watch?t=975&v=l86gpYbQFzY)

by going to Add Component and I'm just going to type Line

* [16:18 - 16:20](https://www.youtube.com/watch?t=978&v=l86gpYbQFzY)

and find Line Renderer.

* [16:20 - 16:21](https://www.youtube.com/watch?t=980&v=l86gpYbQFzY)

I'm specifically typing in line because I can't

* [16:21 - 16:23](https://www.youtube.com/watch?t=981&v=l86gpYbQFzY)

remember where it is otherwise.

* [16:23 - 16:25](https://www.youtube.com/watch?t=983&v=l86gpYbQFzY)

Now a line renderer appears

* [16:25 - 16:27](https://www.youtube.com/watch?t=985&v=l86gpYbQFzY)

as a component in our game object

* [16:27 - 16:29](https://www.youtube.com/watch?t=987&v=l86gpYbQFzY)

and so what the line renderer is, like I say,

* [16:29 - 16:31](https://www.youtube.com/watch?t=989&v=l86gpYbQFzY)

it renders a line, and so there's some settings

* [16:31 - 16:33](https://www.youtube.com/watch?t=991&v=l86gpYbQFzY)

that we've got to do because as we can see right now

* [16:33 - 16:35](https://www.youtube.com/watch?t=993&v=l86gpYbQFzY)

that doesn't really look like a bullet and that doesn't

* [16:35 - 16:36](https://www.youtube.com/watch?t=995&v=l86gpYbQFzY)

really look like a gunshot, it just looks like

* [16:36 - 16:38](https://www.youtube.com/watch?t=996&v=l86gpYbQFzY)

a giant magenta block.

* [16:38 - 16:40](https://www.youtube.com/watch?t=998&v=l86gpYbQFzY)

So we need to set this up appropriately.

* [16:40 - 16:42](https://www.youtube.com/watch?t=1000&v=l86gpYbQFzY)

The first thing we're going to do is

* [16:42 - 16:45](https://www.youtube.com/watch?t=1002&v=l86gpYbQFzY)

expand the Materials drop down, and you can see here

* [16:45 - 16:48](https://www.youtube.com/watch?t=1005&v=l86gpYbQFzY)

I can just expand that by clicking the Materials drop down.

* [16:48 - 16:51](https://www.youtube.com/watch?t=1008&v=l86gpYbQFzY)

And I'm going to look for this Element 0.

* [16:51 - 16:53](https://www.youtube.com/watch?t=1011&v=l86gpYbQFzY)

And right now the reason this is

* [16:53 - 16:55](https://www.youtube.com/watch?t=1013&v=l86gpYbQFzY)

that hideous fuchsia colour is that it doesn't have

* [16:55 - 16:57](https://www.youtube.com/watch?t=1015&v=l86gpYbQFzY)

a material, it doesn't know what it's supposed to look like.

* [16:57 - 16:59](https://www.youtube.com/watch?t=1017&v=l86gpYbQFzY)

So what we want to do is give it

* [16:59 - 17:01](https://www.youtube.com/watch?t=1019&v=l86gpYbQFzY)

a colour so we're going to use the

* [17:01 - 17:03](https://www.youtube.com/watch?t=1021&v=l86gpYbQFzY)

circle selector, we're going to click on that,

* [17:03 - 17:06](https://www.youtube.com/watch?t=1023&v=l86gpYbQFzY)

and we already have a material created.

* [17:06 - 17:09](https://www.youtube.com/watch?t=1026&v=l86gpYbQFzY)

It's just a basic line renderer material

* [17:09 - 17:12](https://www.youtube.com/watch?t=1029&v=l86gpYbQFzY)

which we have cleverly named LineRendererMaterial.

* [17:12 - 17:14](https://www.youtube.com/watch?t=1032&v=l86gpYbQFzY)

So if you use the circle selector and look for

* [17:14 - 17:17](https://www.youtube.com/watch?t=1034&v=l86gpYbQFzY)

that list you should see a line renderer material.

* [17:17 - 17:19](https://www.youtube.com/watch?t=1037&v=l86gpYbQFzY)

Double click on that and it will apply it

* [17:19 - 17:20](https://www.youtube.com/watch?t=1039&v=l86gpYbQFzY)

to the gun.

* [17:20 - 17:25](https://www.youtube.com/watch?t=1040&v=l86gpYbQFzY)

What we want to do is and manage this line renderer better.

* [17:25 - 17:27](https://www.youtube.com/watch?t=1045&v=l86gpYbQFzY)

As we can see it's still, while it's still a

* [17:27 - 17:29](https://www.youtube.com/watch?t=1047&v=l86gpYbQFzY)

better colour, it's the colour of our laser

* [17:29 - 17:33](https://www.youtube.com/watch?t=1049&v=l86gpYbQFzY)

it's still way too big, so we definitely want to manage this.

* [17:33 - 17:35](https://www.youtube.com/watch?t=1053&v=l86gpYbQFzY)

I'll go ahead and collapse the material

* [17:35 - 17:36](https://www.youtube.com/watch?t=1055&v=l86gpYbQFzY)

back down as we're done there.

* [17:36 - 17:38](https://www.youtube.com/watch?t=1056&v=l86gpYbQFzY)

I'm going to expand Parameters and there's two things

* [17:38 - 17:40](https://www.youtube.com/watch?t=1058&v=l86gpYbQFzY)

I'm interested in, the first is Start Width

* [17:40 - 17:42](https://www.youtube.com/watch?t=1060&v=l86gpYbQFzY)

and the second is End Width.

* [17:42 - 17:43](https://www.youtube.com/watch?t=1062&v=l86gpYbQFzY)

And what we're going to do is set these up

* [17:43 - 17:44](https://www.youtube.com/watch?t=1063&v=l86gpYbQFzY)

to be the same value.

* [17:44 - 17:46](https://www.youtube.com/watch?t=1064&v=l86gpYbQFzY)

Because they're the same value the laser will

* [17:46 - 17:48](https://www.youtube.com/watch?t=1066&v=l86gpYbQFzY)

consider them to be the same size.

* [17:48 - 17:50](https://www.youtube.com/watch?t=1068&v=l86gpYbQFzY)

If they were different values it would either flare out in a cone

* [17:50 - 17:51](https://www.youtube.com/watch?t=1070&v=l86gpYbQFzY)

or narrow in or whatever.

* [17:51 - 17:53](https://www.youtube.com/watch?t=1071&v=l86gpYbQFzY)

And so for each of these we're going to specify

* [17:53 - 17:55](https://www.youtube.com/watch?t=1073&v=l86gpYbQFzY)

.05.

* [17:55 - 17:59](https://www.youtube.com/watch?t=1075&v=l86gpYbQFzY)

That's not 0.5, that's .05.

* [17:59 - 18:01](https://www.youtube.com/watch?t=1079&v=l86gpYbQFzY)

We're going to do that for both the start

* [18:01 - 18:03](https://www.youtube.com/watch?t=1081&v=l86gpYbQFzY)

and the end width.

* [18:04 - 18:06](https://www.youtube.com/watch?t=1084&v=l86gpYbQFzY)

Once that is done we are going

* [18:06 - 18:09](https://www.youtube.com/watch?t=1086&v=l86gpYbQFzY)

to go ahead and disable this component.

* [18:09 - 18:11](https://www.youtube.com/watch?t=1089&v=l86gpYbQFzY)

And the way that we're going to disable this component

* [18:11 - 18:13](https://www.youtube.com/watch?t=1091&v=l86gpYbQFzY)

is with this checkbox right here.

* [18:13 - 18:15](https://www.youtube.com/watch?t=1093&v=l86gpYbQFzY)

Right next to the name Line Renderer I'm

* [18:15 - 18:16](https://www.youtube.com/watch?t=1095&v=l86gpYbQFzY)

going to turn it off

* [18:16 - 18:18](https://www.youtube.com/watch?t=1096&v=l86gpYbQFzY)

And the reason I'm going to do that is the game doesn't

* [18:18 - 18:20](https://www.youtube.com/watch?t=1098&v=l86gpYbQFzY)

start with you shooting, the game starts with you

* [18:20 - 18:22](https://www.youtube.com/watch?t=1100&v=l86gpYbQFzY)

not shooting so I'm going to turn it off and only

* [18:22 - 18:24](https://www.youtube.com/watch?t=1102&v=l86gpYbQFzY)

turn it on once the time comes that

* [18:24 - 18:25](https://www.youtube.com/watch?t=1104&v=l86gpYbQFzY)

you have actually fired.

* [18:25 - 18:27](https://www.youtube.com/watch?t=1105&v=l86gpYbQFzY)

Now when we fire the gun what we want to do is

* [18:27 - 18:29](https://www.youtube.com/watch?t=1107&v=l86gpYbQFzY)

we want to have the gun flash and light things up

* [18:29 - 18:31](https://www.youtube.com/watch?t=1109&v=l86gpYbQFzY)

and in order to do that we need a

* [18:31 - 18:33](https://www.youtube.com/watch?t=1111&v=l86gpYbQFzY)

light so I'm going to go ahead and

* [18:33 - 18:35](https://www.youtube.com/watch?t=1113&v=l86gpYbQFzY)

collapse Line Renderer and now I'm

* [18:35 - 18:37](https://www.youtube.com/watch?t=1115&v=l86gpYbQFzY)

going to add a light component.

* [18:37 - 18:40](https://www.youtube.com/watch?t=1117&v=l86gpYbQFzY)

So I'm going to click the Add Component button

* [18:41 - 18:42](https://www.youtube.com/watch?t=1121&v=l86gpYbQFzY)

and I'm going to go to

* [18:42 - 18:46](https://www.youtube.com/watch?t=1122&v=l86gpYbQFzY)

Rendering and I'm going to select Light.

* [18:46 - 18:48](https://www.youtube.com/watch?t=1126&v=l86gpYbQFzY)

What that's going to do is add a light

* [18:48 - 18:51](https://www.youtube.com/watch?t=1128&v=l86gpYbQFzY)

to my gun, which we can see there.

* [18:51 - 18:53](https://www.youtube.com/watch?t=1131&v=l86gpYbQFzY)

What we want to do now is give this

* [18:53 - 18:55](https://www.youtube.com/watch?t=1133&v=l86gpYbQFzY)

the settings that will be appropriate

* [18:55 - 18:56](https://www.youtube.com/watch?t=1135&v=l86gpYbQFzY)

to this particular gun.

* [18:56 - 18:59](https://www.youtube.com/watch?t=1136&v=l86gpYbQFzY)

So the first thing to do is choose a colour

* [18:59 - 19:01](https://www.youtube.com/watch?t=1139&v=l86gpYbQFzY)

and we have this little eye dropper,

* [19:01 - 19:03](https://www.youtube.com/watch?t=1141&v=l86gpYbQFzY)

we can use the eye dropper just like you'd expect,

* [19:03 - 19:04](https://www.youtube.com/watch?t=1143&v=l86gpYbQFzY)

pick a colour out of something,

* [19:04 - 19:06](https://www.youtube.com/watch?t=1144&v=l86gpYbQFzY)

or we can just click next to it

* [19:06 - 19:09](https://www.youtube.com/watch?t=1146&v=l86gpYbQFzY)

and actually use the gradient/color picker

* [19:09 - 19:10](https://www.youtube.com/watch?t=1149&v=l86gpYbQFzY)

to pick a color.

* [19:10 - 19:12](https://www.youtube.com/watch?t=1150&v=l86gpYbQFzY)

I'm going to pick a yellowish color.

* [19:12 - 19:15](https://www.youtube.com/watch?t=1152&v=l86gpYbQFzY)

If you want to pick a different color go for it.

* [19:15 - 19:17](https://www.youtube.com/watch?t=1155&v=l86gpYbQFzY)

But I kind of want my light to be the same color

* [19:17 - 19:19](https://www.youtube.com/watch?t=1157&v=l86gpYbQFzY)

as my line renderer so I'm going with yellow there.

* [19:20 - 19:22](https://www.youtube.com/watch?t=1160&v=l86gpYbQFzY)

So now when we fire the weapon

* [19:22 - 19:24](https://www.youtube.com/watch?t=1162&v=l86gpYbQFzY)

there will in fact be a yellow light.

* [19:24 - 19:26](https://www.youtube.com/watch?t=1164&v=l86gpYbQFzY)

Now again like the line renderer we're not

* [19:26 - 19:28](https://www.youtube.com/watch?t=1166&v=l86gpYbQFzY)

starting firing so we're going to

* [19:28 - 19:30](https://www.youtube.com/watch?t=1168&v=l86gpYbQFzY)

disable the light.

* [19:31 - 19:33](https://www.youtube.com/watch?t=1171&v=l86gpYbQFzY)

So we'll just uncheck it there

* [19:33 - 19:35](https://www.youtube.com/watch?t=1173&v=l86gpYbQFzY)

and the light will be turned off until

* [19:35 - 19:37](https://www.youtube.com/watch?t=1175&v=l86gpYbQFzY)

we turn it on when we fire.

* [19:37 - 19:39](https://www.youtube.com/watch?t=1177&v=l86gpYbQFzY)

And so the last little bit we're going to

* [19:39 - 19:41](https://www.youtube.com/watch?t=1179&v=l86gpYbQFzY)

add is we need an audio source

* [19:41 - 19:44](https://www.youtube.com/watch?t=1181&v=l86gpYbQFzY)

so the gun can play the firing sound.

* [19:44 - 19:47](https://www.youtube.com/watch?t=1184&v=l86gpYbQFzY)

So what we're going to do is click Add Component.

* [19:47 - 19:50](https://www.youtube.com/watch?t=1187&v=l86gpYbQFzY)

We're going to choose Audio and Audio Source.

* [19:51 - 19:54](https://www.youtube.com/watch?t=1191&v=l86gpYbQFzY)

Now once the audio source is on the game object,

* [19:54 - 19:56](https://www.youtube.com/watch?t=1194&v=l86gpYbQFzY)

again just like we've done in the past we're going

* [19:56 - 19:59](https://www.youtube.com/watch?t=1196&v=l86gpYbQFzY)

to use the circle select picker

* [19:59 - 20:03](https://www.youtube.com/watch?t=1199&v=l86gpYbQFzY)

and we are going to locate Player GunShot.

* [20:03 - 20:05](https://www.youtube.com/watch?t=1203&v=l86gpYbQFzY)

Double click to add that and we are going to

* [20:05 - 20:07](https://www.youtube.com/watch?t=1205&v=l86gpYbQFzY)

uncheck Play On Wake.

* [20:07 - 20:09](https://www.youtube.com/watch?t=1207&v=l86gpYbQFzY)

We also want to be sure

* [20:09 - 20:11](https://www.youtube.com/watch?t=1209&v=l86gpYbQFzY)

that we do not have loop because

* [20:11 - 20:13](https://www.youtube.com/watch?t=1211&v=l86gpYbQFzY)

that will just drive everybody nuts.

* [20:13 - 20:15](https://www.youtube.com/watch?t=1213&v=l86gpYbQFzY)

So no play on awake, no looping,

* [20:15 - 20:16](https://www.youtube.com/watch?t=1215&v=l86gpYbQFzY)

That would be completely unnecessary.

* [20:16 - 20:19](https://www.youtube.com/watch?t=1216&v=l86gpYbQFzY)

At this point the gun is setup.

* [20:19 - 20:21](https://www.youtube.com/watch?t=1219&v=l86gpYbQFzY)

So now we can add the scripts

* [20:21 - 20:23](https://www.youtube.com/watch?t=1221&v=l86gpYbQFzY)

that's going to allow the player to attack the enemy.

* [20:23 - 20:26](https://www.youtube.com/watch?t=1223&v=l86gpYbQFzY)

So to recap, the enemy has health,

* [20:26 - 20:28](https://www.youtube.com/watch?t=1226&v=l86gpYbQFzY)

we've added the health script to the enemy which will

* [20:28 - 20:31](https://www.youtube.com/watch?t=1228&v=l86gpYbQFzY)

control when the enemy can attack and how the enemy dies.

* [20:31 - 20:35](https://www.youtube.com/watch?t=1231&v=l86gpYbQFzY)

The gun has particle effects, lights, line renderers and sound.

* [20:35 - 20:37](https://www.youtube.com/watch?t=1235&v=l86gpYbQFzY)

Now the last piece of this puzzle

* [20:37 - 20:39](https://www.youtube.com/watch?t=1237&v=l86gpYbQFzY)

is to give the player a script that's

* [20:39 - 20:41](https://www.youtube.com/watch?t=1239&v=l86gpYbQFzY)

going to allow the player to actually

* [20:41 - 20:44](https://www.youtube.com/watch?t=1241&v=l86gpYbQFzY)

fire the gun and harm the enemy.

* [20:44 - 20:47](https://www.youtube.com/watch?t=1244&v=l86gpYbQFzY)

So in the Scripts - Player folder

* [20:49 - 20:53](https://www.youtube.com/watch?t=1249&v=l86gpYbQFzY)

we're going to look for the PlayerShooting script.

* [20:53 - 20:55](https://www.youtube.com/watch?t=1253&v=l86gpYbQFzY)

And just like the previous scripts we're going to

* [20:55 - 20:57](https://www.youtube.com/watch?t=1255&v=l86gpYbQFzY)

click and drag this

* [20:59 - 21:01](https://www.youtube.com/watch?t=1259&v=l86gpYbQFzY)

and we are going to place it on the GunBarrelEnd,

* [21:01 - 21:03](https://www.youtube.com/watch?t=1261&v=l86gpYbQFzY)

not on the Player,

* [21:03 - 21:05](https://www.youtube.com/watch?t=1263&v=l86gpYbQFzY)

on the GunBarrelEnd.

* [21:05 - 21:07](https://www.youtube.com/watch?t=1265&v=l86gpYbQFzY)

So if we select the GunBarrelEnd we should see

* [21:07 - 21:09](https://www.youtube.com/watch?t=1267&v=l86gpYbQFzY)

the PlayerShooting script there.

* [21:09 - 21:11](https://www.youtube.com/watch?t=1269&v=l86gpYbQFzY)

So again ensure that it is not

* [21:11 - 21:15](https://www.youtube.com/watch?t=1271&v=l86gpYbQFzY)

on the Player, it is on the GunBarrelEnd.

* [21:15 - 21:17](https://www.youtube.com/watch?t=1275&v=l86gpYbQFzY)

And now let's go ahead and open up the PlayerShooting script.

* [21:17 - 21:20](https://www.youtube.com/watch?t=1277&v=l86gpYbQFzY)

Save your scene first. And let's look at what this script does.

* [21:20 - 21:22](https://www.youtube.com/watch?t=1280&v=l86gpYbQFzY)

The first thing we have is

* [21:22 - 21:24](https://www.youtube.com/watch?t=1282&v=l86gpYbQFzY)

these public variable declarations here,

* [21:24 - 21:27](https://www.youtube.com/watch?t=1284&v=l86gpYbQFzY)

the first is public in damagerPerShot

* [21:27 - 21:29](https://www.youtube.com/watch?t=1287&v=l86gpYbQFzY)

and we can see that every bullet is going to do

* [21:29 - 21:30](https://www.youtube.com/watch?t=1289&v=l86gpYbQFzY)

20 points of damage.

* [21:30 - 21:34](https://www.youtube.com/watch?t=1290&v=l86gpYbQFzY)

We also have a public float timeBetweenBullets

* [21:34 - 21:36](https://www.youtube.com/watch?t=1294&v=l86gpYbQFzY)

which again is going to control how quickly

* [21:36 - 21:39](https://www.youtube.com/watch?t=1296&v=l86gpYbQFzY)

our gun can fire, obviously we reduce that value

* [21:39 - 21:40](https://www.youtube.com/watch?t=1299&v=l86gpYbQFzY)

if we want to make our gun fire more quickly.

* [21:40 - 21:42](https://www.youtube.com/watch?t=1300&v=l86gpYbQFzY)

Then we have public float range

* [21:42 - 21:44](https://www.youtube.com/watch?t=1302&v=l86gpYbQFzY)

and that's how far bullets can go.

* [21:44 - 21:47](https://www.youtube.com/watch?t=1304&v=l86gpYbQFzY)

In this case they're going to be able to go 100 units

* [21:47 - 21:49](https://www.youtube.com/watch?t=1307&v=l86gpYbQFzY)

which is actually a really far distance.

* [21:49 - 21:51](https://www.youtube.com/watch?t=1309&v=l86gpYbQFzY)

Then we've got some private variables here

* [21:51 - 21:53](https://www.youtube.com/watch?t=1311&v=l86gpYbQFzY)

the first is a float timer,

* [21:53 - 21:55](https://www.youtube.com/watch?t=1313&v=l86gpYbQFzY)

and the float timer, just like the enemy attack,

* [21:55 - 21:56](https://www.youtube.com/watch?t=1315&v=l86gpYbQFzY)

it's going to keep everything in sync,

* [21:56 - 21:59](https://www.youtube.com/watch?t=1316&v=l86gpYbQFzY)

it'll make sure we can only attack when the time is right.

* [21:59 - 22:02](https://www.youtube.com/watch?t=1319&v=l86gpYbQFzY)

Then we have a Ray shootRay.

* [22:02 - 22:04](https://www.youtube.com/watch?t=1322&v=l86gpYbQFzY)

If you recall we have a gun,

* [22:04 - 22:06](https://www.youtube.com/watch?t=1324&v=l86gpYbQFzY)

we're firing so we're going to use this ray to actually

* [22:06 - 22:09](https://www.youtube.com/watch?t=1326&v=l86gpYbQFzY)

raycast out and figure out what it is we've hit

* [22:09 - 22:13](https://www.youtube.com/watch?t=1329&v=l86gpYbQFzY)

with these bullets, and that's how we're going to hit things.

* [22:13 - 22:15](https://www.youtube.com/watch?t=1333&v=l86gpYbQFzY)

We then have a RaycastHit variable called shootHit,

* [22:15 - 22:17](https://www.youtube.com/watch?t=1335&v=l86gpYbQFzY)

which is going to return back to us

* [22:17 - 22:19](https://www.youtube.com/watch?t=1337&v=l86gpYbQFzY)

whatever it is that we've hit.

* [22:19 - 22:22](https://www.youtube.com/watch?t=1339&v=l86gpYbQFzY)

We're then going to have an int shootableMask.

* [22:22 - 22:24](https://www.youtube.com/watch?t=1342&v=l86gpYbQFzY)

So we remember the floorMask which dictated that the

* [22:24 - 22:27](https://www.youtube.com/watch?t=1344&v=l86gpYbQFzY)

raycast from the camera could only click on the floor.

* [22:27 - 22:29](https://www.youtube.com/watch?t=1347&v=l86gpYbQFzY)

So what we're going to have is a shootable mask

* [22:29 - 22:32](https://www.youtube.com/watch?t=1349&v=l86gpYbQFzY)

to make sure that we can only hit shootable things,

* [22:32 - 22:35](https://www.youtube.com/watch?t=1352&v=l86gpYbQFzY)

we only want to shoot things that we can actually shoot.

* [22:35 - 22:37](https://www.youtube.com/watch?t=1355&v=l86gpYbQFzY)

Then we have a particle system referenced

* [22:37 - 22:39](https://www.youtube.com/watch?t=1357&v=l86gpYbQFzY)

to gunParticles, you'll recall that's the particle component

* [22:39 - 22:41](https://www.youtube.com/watch?t=1359&v=l86gpYbQFzY)

that we added in our previous step,

* [22:41 - 22:43](https://www.youtube.com/watch?t=1361&v=l86gpYbQFzY)

so that just gives us a reference to it.

* [22:43 - 22:45](https://www.youtube.com/watch?t=1363&v=l86gpYbQFzY)

Here's our reference to our line renderer called

* [22:45 - 22:49](https://www.youtube.com/watch?t=1365&v=l86gpYbQFzY)

gunLine, right, so again just so we can reference this in the script.

* [22:49 - 22:52](https://www.youtube.com/watch?t=1369&v=l86gpYbQFzY)

Our audio source reference called gunAudio.

* [22:52 - 22:54](https://www.youtube.com/watch?t=1372&v=l86gpYbQFzY)

Our light reference called gunLight.

* [22:54 - 22:58](https://www.youtube.com/watch?t=1374&v=l86gpYbQFzY)

And then our float effectsDisplayTime, which is

* [22:58 - 23:00](https://www.youtube.com/watch?t=1378&v=l86gpYbQFzY)

how long these effects are going to be

* [23:00 - 23:02](https://www.youtube.com/watch?t=1380&v=l86gpYbQFzY)

viewable before they disappear.

* [23:02 - 23:04](https://www.youtube.com/watch?t=1382&v=l86gpYbQFzY)

In our awake function we're going to setup all of our

* [23:04 - 23:06](https://www.youtube.com/watch?t=1384&v=l86gpYbQFzY)

references so we want to

* [23:06 - 23:09](https://www.youtube.com/watch?t=1386&v=l86gpYbQFzY)

set out shootableMask to the appropriate values

* [23:09 - 23:12](https://www.youtube.com/watch?t=1389&v=l86gpYbQFzY)

by saying LayerMask.GetMask ("Shootable") ;

* [23:12 - 23:14](https://www.youtube.com/watch?t=1392&v=l86gpYbQFzY)

What this is going to return back to us is

* [23:14 - 23:16](https://www.youtube.com/watch?t=1394&v=l86gpYbQFzY)

the number of our shootable layer.

* [23:16 - 23:19](https://www.youtube.com/watch?t=1396&v=l86gpYbQFzY)

You'll recall the level or the obstacles and everything

* [23:19 - 23:22](https://www.youtube.com/watch?t=1399&v=l86gpYbQFzY)

is on the shootable layer and the Zombunny we

* [23:22 - 23:24](https://www.youtube.com/watch?t=1402&v=l86gpYbQFzY)

created is also on the shootable layer.

* [23:24 - 23:26](https://www.youtube.com/watch?t=1404&v=l86gpYbQFzY)

So by setting up this mask we can shoot pretty

* [23:26 - 23:28](https://www.youtube.com/watch?t=1406&v=l86gpYbQFzY)

much anything that should be shootable.

* [23:28 - 23:30](https://www.youtube.com/watch?t=1408&v=l86gpYbQFzY)

Then we have the gun particles which we're going to

* [23:30 - 23:34](https://www.youtube.com/watch?t=1410&v=l86gpYbQFzY)

get access to by saying GetComponent

* [23:34 - 23:36](https://www.youtube.com/watch?t=1414&v=l86gpYbQFzY)

Then we're going to do the same for line, audio and light,

* [23:36 - 23:39](https://www.youtube.com/watch?t=1416&v=l86gpYbQFzY)

just gunLine = GetComponent

* [23:39 - 23:41](https://www.youtube.com/watch?t=1419&v=l86gpYbQFzY)

gunAudio = GetComponent

* [23:41 - 23:43](https://www.youtube.com/watch?t=1421&v=l86gpYbQFzY)

gunLight = GetComponent

* [23:43 - 23:45](https://www.youtube.com/watch?t=1423&v=l86gpYbQFzY)

which is just giving us a reference

* [23:45 - 23:46](https://www.youtube.com/watch?t=1425&v=l86gpYbQFzY)

so we can directly access those.

* [23:46 - 23:48](https://www.youtube.com/watch?t=1426&v=l86gpYbQFzY)

Now in the update function is where we

* [23:48 - 23:51](https://www.youtube.com/watch?t=1428&v=l86gpYbQFzY)

control whether or not it is time to shoot.

* [23:51 - 23:53](https://www.youtube.com/watch?t=1431&v=l86gpYbQFzY)

So very much like with the enemy attacking

* [23:53 - 23:55](https://www.youtube.com/watch?t=1433&v=l86gpYbQFzY)

here we have a function that's going to manage that.

* [23:55 - 23:57](https://www.youtube.com/watch?t=1435&v=l86gpYbQFzY)

So the first thing we're going to do is

* [23:57 - 23:59](https://www.youtube.com/watch?t=1437&v=l86gpYbQFzY)

accumulate your time and we do that by

* [23:59 - 24:01](https://www.youtube.com/watch?t=1439&v=l86gpYbQFzY)

saying time += Time.deltaTime.

* [24:01 - 24:03](https://www.youtube.com/watch?t=1441&v=l86gpYbQFzY)

So we'll basically increase in size

* [24:03 - 24:05](https://www.youtube.com/watch?t=1443&v=l86gpYbQFzY)

as time progresses.

* [24:05 - 24:06](https://www.youtube.com/watch?t=1445&v=l86gpYbQFzY)

Then we're going to say

* [24:06 - 24:12](https://www.youtube.com/watch?t=1446&v=l86gpYbQFzY)

if(Input.GetButton ("Fire1") and you might be thinking 'what is Fire1?'

* [24:12 - 24:14](https://www.youtube.com/watch?t=1452&v=l86gpYbQFzY)

Remember earlier we talked about the

* [24:14 - 24:17](https://www.youtube.com/watch?t=1454&v=l86gpYbQFzY)

Input.GetAxisHorizontal, Input.GetAxisVerticle,

* [24:17 - 24:21](https://www.youtube.com/watch?t=1457&v=l86gpYbQFzY)

these input axis that are built in to Unity for us

* [24:21 - 24:23](https://www.youtube.com/watch?t=1461&v=l86gpYbQFzY)

Fire1 is one of those.

* [24:23 - 24:25](https://www.youtube.com/watch?t=1463&v=l86gpYbQFzY)

Fire1 automatically maps to the

* [24:25 - 24:27](https://www.youtube.com/watch?t=1465&v=l86gpYbQFzY)

left control on your keyboard or

* [24:27 - 24:30](https://www.youtube.com/watch?t=1467&v=l86gpYbQFzY)

your mouse0 which is your left mouse button.

* [24:30 - 24:31](https://www.youtube.com/watch?t=1470&v=l86gpYbQFzY)

So that happens for you automatically.

* [24:31 - 24:33](https://www.youtube.com/watch?t=1471&v=l86gpYbQFzY)

You can override it here but if you don't do anything

* [24:33 - 24:35](https://www.youtube.com/watch?t=1473&v=l86gpYbQFzY)

that's built in to Unity, so

* [24:35 - 24:37](https://www.youtube.com/watch?t=1475&v=l86gpYbQFzY)

so you can always say Fire1 and that's how you talk

* [24:37 - 24:38](https://www.youtube.com/watch?t=1477&v=l86gpYbQFzY)

about the left mouse button.

* [24:39 - 24:41](https://www.youtube.com/watch?t=1479&v=l86gpYbQFzY)

So what we're saying is

* [24:41 - 24:43](https://www.youtube.com/watch?t=1481&v=l86gpYbQFzY)

if the player has clicked the left mouse button

* [24:43 - 24:47](https://www.youtube.com/watch?t=1483&v=l86gpYbQFzY)

or pressed the left control key

* [24:47 - 24:49](https://www.youtube.com/watch?t=1487&v=l86gpYbQFzY)

and

* [24:49 - 24:52](https://www.youtube.com/watch?t=1489&v=l86gpYbQFzY)

timer is greater than the delay between our shots.

* [24:52 - 24:54](https://www.youtube.com/watch?t=1492&v=l86gpYbQFzY)

So if it's time to shoot and the player wants to shoot

* [24:54 - 24:55](https://www.youtube.com/watch?t=1494&v=l86gpYbQFzY)

by clicking the button,

* [24:55 - 24:57](https://www.youtube.com/watch?t=1495&v=l86gpYbQFzY)

then we're going to call our function Shoot.

* [24:57 - 24:59](https://www.youtube.com/watch?t=1497&v=l86gpYbQFzY)

Shoot is a function we've written further down and

* [24:59 - 25:00](https://www.youtube.com/watch?t=1499&v=l86gpYbQFzY)

we'll talk about that in a second.

* [25:00 - 25:03](https://www.youtube.com/watch?t=1500&v=l86gpYbQFzY)

So if it's time and you're pressing the button we're going to shoot.

* [25:03 - 25:05](https://www.youtube.com/watch?t=1503&v=l86gpYbQFzY)

Then we're going to say if the timer

* [25:05 - 25:07](https://www.youtube.com/watch?t=1505&v=l86gpYbQFzY)

is greater than or equal to the

* [25:07 - 25:09](https://www.youtube.com/watch?t=1507&v=l86gpYbQFzY)

timeBetterBullets times the

* [25:09 - 25:13](https://www.youtube.com/watch?t=1509&v=l86gpYbQFzY)

effectDisplayTime what we'll do is disable the effects.

* [25:13 - 25:15](https://www.youtube.com/watch?t=1513&v=l86gpYbQFzY)

So what that means is if we've fired

* [25:15 - 25:17](https://www.youtube.com/watch?t=1515&v=l86gpYbQFzY)

and then enough time has progressed we're going

* [25:17 - 25:20](https://www.youtube.com/watch?t=1517&v=l86gpYbQFzY)

to turn the light and the line renderer and everything back off.

* [25:20 - 25:23](https://www.youtube.com/watch?t=1520&v=l86gpYbQFzY)

So we don't leave it on consistently.

* [25:23 - 25:26](https://www.youtube.com/watch?t=1523&v=l86gpYbQFzY)

So the DisableEffects function is public

* [25:26 - 25:29](https://www.youtube.com/watch?t=1526&v=l86gpYbQFzY)

which means again it can be A) referenced

* [25:29 - 25:33](https://www.youtube.com/watch?t=1529&v=l86gpYbQFzY)

by another script, B) referenced by another script on another game object

* [25:33 - 25:36](https://www.youtube.com/watch?t=1533&v=l86gpYbQFzY)

C) accessed by animation events and so on and so forth.

* [25:36 - 25:38](https://www.youtube.com/watch?t=1536&v=l86gpYbQFzY)

Public basically gives us a lot of access to it.

* [25:38 - 25:40](https://www.youtube.com/watch?t=1538&v=l86gpYbQFzY)

And the function basically says

* [25:40 - 25:43](https://www.youtube.com/watch?t=1540&v=l86gpYbQFzY)

the light and the line renderer,

* [25:43 - 25:44](https://www.youtube.com/watch?t=1543&v=l86gpYbQFzY)

just disable both of those.

* [25:44 - 25:47](https://www.youtube.com/watch?t=1544&v=l86gpYbQFzY)

Again not SetActive but Enabled = false

* [25:47 - 25:49](https://www.youtube.com/watch?t=1547&v=l86gpYbQFzY)

because they're components.

* [25:49 - 25:51](https://www.youtube.com/watch?t=1549&v=l86gpYbQFzY)

Now the Shoot function itself.

* [25:51 - 25:53](https://www.youtube.com/watch?t=1551&v=l86gpYbQFzY)

This is where we do the physics

* [25:53 - 25:55](https://www.youtube.com/watch?t=1553&v=l86gpYbQFzY)

of actually firing the bullet and it's

* [25:55 - 25:57](https://www.youtube.com/watch?t=1555&v=l86gpYbQFzY)

actually a fairly complex function here

* [25:57 - 25:59](https://www.youtube.com/watch?t=1557&v=l86gpYbQFzY)

so we'll step through it nice and easy.

* [25:59 - 26:01](https://www.youtube.com/watch?t=1559&v=l86gpYbQFzY)

The first thing we're going to do is reset the timer

* [26:01 - 26:03](https://www.youtube.com/watch?t=1561&v=l86gpYbQFzY)

back to 0 because we're firing now and we're going to

* [26:03 - 26:06](https://www.youtube.com/watch?t=1563&v=l86gpYbQFzY)

reset the amount of time we have to wait between firing.

* [26:06 - 26:08](https://www.youtube.com/watch?t=1566&v=l86gpYbQFzY)

The very next thing we're going to do is play the audio

* [26:08 - 26:10](https://www.youtube.com/watch?t=1568&v=l86gpYbQFzY)

and then we're turning the light on.

* [26:10 - 26:12](https://www.youtube.com/watch?t=1570&v=l86gpYbQFzY)

Now we don't need to do anything with the light

* [26:12 - 26:15](https://www.youtube.com/watch?t=1572&v=l86gpYbQFzY)

or the audio, we basically need to say

* [26:15 - 26:17](https://www.youtube.com/watch?t=1575&v=l86gpYbQFzY)

Then what we're going to say is if the

* [26:17 - 26:19](https://www.youtube.com/watch?t=1577&v=l86gpYbQFzY)

particles are still playing

* [26:19 - 26:21](https://www.youtube.com/watch?t=1579&v=l86gpYbQFzY)

stop them and then start them again.

* [26:21 - 26:23](https://www.youtube.com/watch?t=1581&v=l86gpYbQFzY)

What you don't want to happen is you don't

* [26:23 - 26:25](https://www.youtube.com/watch?t=1583&v=l86gpYbQFzY)

want to go to play the particles

* [26:25 - 26:27](https://www.youtube.com/watch?t=1585&v=l86gpYbQFzY)

have them already be playing

* [26:27 - 26:29](https://www.youtube.com/watch?t=1587&v=l86gpYbQFzY)

thus they don't replay and we get

* [26:29 - 26:32](https://www.youtube.com/watch?t=1589&v=l86gpYbQFzY)

a disconnect between the visuals of firing

* [26:32 - 26:35](https://www.youtube.com/watch?t=1592&v=l86gpYbQFzY)

and the actual raycasting and physics that's happening.

* [26:35 - 26:38](https://www.youtube.com/watch?t=1595&v=l86gpYbQFzY)

So we say if the particles are playing stop and start again.

* [26:38 - 26:40](https://www.youtube.com/watch?t=1598&v=l86gpYbQFzY)

Also if that were to happen the stop

* [26:40 - 26:42](https://www.youtube.com/watch?t=1600&v=l86gpYbQFzY)

and start would be so far your eye wouldn't even pick it up.

* [26:42 - 26:46](https://www.youtube.com/watch?t=1602&v=l86gpYbQFzY)

It would just feel like you're just firing really fast.

* [26:46 - 26:50](https://www.youtube.com/watch?t=1606&v=l86gpYbQFzY)

Then we're going to say 'let's turn on our line renderer',

* [26:50 - 26:53](https://www.youtube.com/watch?t=1610&v=l86gpYbQFzY)

which is the actual visual element of the bullet.

* [26:53 - 26:54](https://www.youtube.com/watch?t=1613&v=l86gpYbQFzY)

So we turn that on, so we say

* [26:54 - 26:56](https://www.youtube.com/watch?t=1614&v=l86gpYbQFzY)

gunLine.enabled = true.

* [26:56 - 26:59](https://www.youtube.com/watch?t=1616&v=l86gpYbQFzY)

Then here comes the tricky part about using lines,

* [26:59 - 27:01](https://www.youtube.com/watch?t=1619&v=l86gpYbQFzY)

lines have 2 points right?

* [27:01 - 27:02](https://www.youtube.com/watch?t=1621&v=l86gpYbQFzY)

One end and the other end.

* [27:02 - 27:04](https://www.youtube.com/watch?t=1622&v=l86gpYbQFzY)

Well the first end we know, it's the end of the gun,

* [27:04 - 27:06](https://www.youtube.com/watch?t=1624&v=l86gpYbQFzY)

it's the barrel of the gun,

* [27:06 - 27:09](https://www.youtube.com/watch?t=1626&v=l86gpYbQFzY)

so we access that by saying gunLine.SetPosition 0.

* [27:09 - 27:11](https://www.youtube.com/watch?t=1629&v=l86gpYbQFzY)

Computers start counting at 0

* [27:11 - 27:13](https://www.youtube.com/watch?t=1631&v=l86gpYbQFzY)

so when we say SetPosition 0 we mean

* [27:13 - 27:15](https://www.youtube.com/watch?t=1633&v=l86gpYbQFzY)

the first position of the line,

* [27:15 - 27:17](https://www.youtube.com/watch?t=1635&v=l86gpYbQFzY)

which is right at the barrel of our gun.

* [27:17 - 27:20](https://www.youtube.com/watch?t=1637&v=l86gpYbQFzY)

So we specify that as transform.position

* [27:20 - 27:22](https://www.youtube.com/watch?t=1640&v=l86gpYbQFzY)

since the script is on the barrel of the gun.

* [27:22 - 27:24](https://www.youtube.com/watch?t=1642&v=l86gpYbQFzY)

So that's the first point.

* [27:24 - 27:26](https://www.youtube.com/watch?t=1644&v=l86gpYbQFzY)

But what's the second point?

* [27:26 - 27:28](https://www.youtube.com/watch?t=1646&v=l86gpYbQFzY)

We don't know yet, that's the part we need to calculate.

* [27:28 - 27:30](https://www.youtube.com/watch?t=1648&v=l86gpYbQFzY)

And that's the part that requires a bit of physics

* [27:30 - 27:32](https://www.youtube.com/watch?t=1650&v=l86gpYbQFzY)

and a bit of raycasting.

* [27:32 - 27:35](https://www.youtube.com/watch?t=1652&v=l86gpYbQFzY)

So if you recall we create a variable called shootRay,

* [27:35 - 27:37](https://www.youtube.com/watch?t=1655&v=l86gpYbQFzY)

which is the raycast from our gun

* [27:37 - 27:39](https://www.youtube.com/watch?t=1657&v=l86gpYbQFzY)

and so the first thing we want to do is

* [27:39 - 27:41](https://www.youtube.com/watch?t=1659&v=l86gpYbQFzY)

setup this ray so that we can utilise it.

* [27:41 - 27:43](https://www.youtube.com/watch?t=1661&v=l86gpYbQFzY)

The ray is going to start

* [27:43 - 27:45](https://www.youtube.com/watch?t=1663&v=l86gpYbQFzY)

at the tip of the gun, so

* [27:45 - 27:48](https://www.youtube.com/watch?t=1665&v=l86gpYbQFzY)

shootRay.origin = transform.position;

* [27:48 - 27:50](https://www.youtube.com/watch?t=1668&v=l86gpYbQFzY)

That's where the ray is starting off.

* [27:50 - 27:52](https://www.youtube.com/watch?t=1670&v=l86gpYbQFzY)

A ray starts at one point and

* [27:52 - 27:54](https://www.youtube.com/watch?t=1672&v=l86gpYbQFzY)

goes in some direction, so we need to specify

* [27:54 - 27:56](https://www.youtube.com/watch?t=1674&v=l86gpYbQFzY)

a direction for our ray, and we say

* [27:56 - 28:00](https://www.youtube.com/watch?t=1676&v=l86gpYbQFzY)

shootRay.direction = transform.forward;

* [28:00 - 28:03](https://www.youtube.com/watch?t=1680&v=l86gpYbQFzY)

and this is something James has talked about previously,

* [28:03 - 28:06](https://www.youtube.com/watch?t=1683&v=l86gpYbQFzY)

we generally treat forward in the Z axis

* [28:06 - 28:08](https://www.youtube.com/watch?t=1686&v=l86gpYbQFzY)

as forward, positive on Z axis as forward.

* [28:08 - 28:12](https://www.youtube.com/watch?t=1688&v=l86gpYbQFzY)

So as the gun is pointing directly away from the player

* [28:12 - 28:13](https://www.youtube.com/watch?t=1692&v=l86gpYbQFzY)

that is forward.

* [28:13 - 28:15](https://www.youtube.com/watch?t=1693&v=l86gpYbQFzY)

So if I say transform.forward what I'm saying

* [28:15 - 28:17](https://www.youtube.com/watch?t=1695&v=l86gpYbQFzY)

is 'that way',

* [28:17 - 28:19](https://www.youtube.com/watch?t=1697&v=l86gpYbQFzY)

so that the bullet will travel

* [28:19 - 28:24](https://www.youtube.com/watch?t=1699&v=l86gpYbQFzY)

directly along the line of this gun barrel and this gun.

* [28:24 - 28:27](https://www.youtube.com/watch?t=1704&v=l86gpYbQFzY)

So we have our ray setup, at the tip of the gun

* [28:27 - 28:29](https://www.youtube.com/watch?t=1707&v=l86gpYbQFzY)

that way, right, forward, so now we need to

* [28:29 - 28:31](https://www.youtube.com/watch?t=1709&v=l86gpYbQFzY)

actually use physics to fire it.

* [28:31 - 28:33](https://www.youtube.com/watch?t=1711&v=l86gpYbQFzY)

And so let me tell you what's going to happen

* [28:33 - 28:35](https://www.youtube.com/watch?t=1713&v=l86gpYbQFzY)

and then we'll walk through the code.

* [28:35 - 28:37](https://www.youtube.com/watch?t=1715&v=l86gpYbQFzY)

The idea is that we are going to fire a ray

* [28:37 - 28:39](https://www.youtube.com/watch?t=1717&v=l86gpYbQFzY)

forward 100 units, because that's

* [28:39 - 28:40](https://www.youtube.com/watch?t=1719&v=l86gpYbQFzY)

how far we say we can fire it.

* [28:40 - 28:44](https://www.youtube.com/watch?t=1720&v=l86gpYbQFzY)

If it hits something, what ever it hits is going to be returned

* [28:44 - 28:46](https://www.youtube.com/watch?t=1724&v=l86gpYbQFzY)

back to us and we're going to say 'the other end of

* [28:46 - 28:48](https://www.youtube.com/watch?t=1726&v=l86gpYbQFzY)

the line is there', whatever it is we hit

* [28:48 - 28:50](https://www.youtube.com/watch?t=1728&v=l86gpYbQFzY)

that's the other end and we draw the line.

* [28:50 - 28:52](https://www.youtube.com/watch?t=1730&v=l86gpYbQFzY)

If we don't hit anything,

* [28:52 - 28:54](https://www.youtube.com/watch?t=1732&v=l86gpYbQFzY)

we still want to fire, but if we don't hit anything

* [28:54 - 28:56](https://www.youtube.com/watch?t=1734&v=l86gpYbQFzY)

what we're going to do is say

* [28:56 - 28:57](https://www.youtube.com/watch?t=1736&v=l86gpYbQFzY)

'where's the other end of this line?

* [28:57 - 28:59](https://www.youtube.com/watch?t=1737&v=l86gpYbQFzY)

It's just way out there'

* [28:59 - 29:01](https://www.youtube.com/watch?t=1739&v=l86gpYbQFzY)

and it's actually such a long line

* [29:01 - 29:03](https://www.youtube.com/watch?t=1741&v=l86gpYbQFzY)

there's literally no way to see

* [29:03 - 29:04](https://www.youtube.com/watch?t=1743&v=l86gpYbQFzY)

the end of it so you just think

* [29:04 - 29:06](https://www.youtube.com/watch?t=1744&v=l86gpYbQFzY)

'cool, he's just firing', you don't really notice.

* [29:06 - 29:09](https://www.youtube.com/watch?t=1746&v=l86gpYbQFzY)

So we need to say shoot a ray, if it hits something

* [29:09 - 29:11](https://www.youtube.com/watch?t=1749&v=l86gpYbQFzY)

that's what we hit, and if it doesn't

* [29:11 - 29:13](https://www.youtube.com/watch?t=1751&v=l86gpYbQFzY)

then just draw a really long line.

* [29:13 - 29:15](https://www.youtube.com/watch?t=1753&v=l86gpYbQFzY)

We do that by saying

* [29:15 - 29:18](https://www.youtube.com/watch?t=1755&v=l86gpYbQFzY)

if(Physics.Raycast, so this again is that raycast function,

* [29:18 - 29:20](https://www.youtube.com/watch?t=1758&v=l86gpYbQFzY)

and we're parsing in to it the ray that we specify,

* [29:20 - 29:22](https://www.youtube.com/watch?t=1760&v=l86gpYbQFzY)

we're saying 'that way'.

* [29:22 - 29:24](https://www.youtube.com/watch?t=1762&v=l86gpYbQFzY)

And then we're going to say 'give us information

* [29:24 - 29:26](https://www.youtube.com/watch?t=1764&v=l86gpYbQFzY)

about what it is that we've hit'

* [29:26 - 29:28](https://www.youtube.com/watch?t=1766&v=l86gpYbQFzY)

and that's why we have this Out keyword

* [29:28 - 29:29](https://www.youtube.com/watch?t=1768&v=l86gpYbQFzY)

and the shootHit variable.

* [29:29 - 29:31](https://www.youtube.com/watch?t=1769&v=l86gpYbQFzY)

If we hit something the variable shootHit will be

* [29:31 - 29:33](https://www.youtube.com/watch?t=1771&v=l86gpYbQFzY)

like 'this is what you hit'

* [29:33 - 29:36](https://www.youtube.com/watch?t=1773&v=l86gpYbQFzY)

cool, we need that information so it's important to have.

* [29:36 - 29:38](https://www.youtube.com/watch?t=1776&v=l86gpYbQFzY)

Then we specify the range, and the range

* [29:38 - 29:40](https://www.youtube.com/watch?t=1778&v=l86gpYbQFzY)

is 100f, it's something that we specified

* [29:40 - 29:42](https://www.youtube.com/watch?t=1780&v=l86gpYbQFzY)

up at the top, it's a variable.

* [29:42 - 29:45](https://www.youtube.com/watch?t=1782&v=l86gpYbQFzY)

Finally we parse in our shootable mask.

* [29:45 - 29:47](https://www.youtube.com/watch?t=1785&v=l86gpYbQFzY)

Meaning this ray can only hit

* [29:47 - 29:49](https://www.youtube.com/watch?t=1787&v=l86gpYbQFzY)

the things we want this ray to be able to hit,

* [29:49 - 29:50](https://www.youtube.com/watch?t=1789&v=l86gpYbQFzY)

shootable things.

* [29:50 - 29:53](https://www.youtube.com/watch?t=1790&v=l86gpYbQFzY)

We're not interested in anything else.

* [29:53 - 29:56](https://www.youtube.com/watch?t=1793&v=l86gpYbQFzY)

If that ray hits something

* [29:56 - 29:58](https://www.youtube.com/watch?t=1796&v=l86gpYbQFzY)

we're going to go in to this code.

* [29:58 - 30:01](https://www.youtube.com/watch?t=1798&v=l86gpYbQFzY)

if it hits something what we're going to do

* [30:01 - 30:03](https://www.youtube.com/watch?t=1801&v=l86gpYbQFzY)

is we are going to get from

* [30:03 - 30:05](https://www.youtube.com/watch?t=1803&v=l86gpYbQFzY)

it the enemy health script.

* [30:05 - 30:07](https://www.youtube.com/watch?t=1805&v=l86gpYbQFzY)

I'm going to talk about that here in a second.

* [30:07 - 30:08](https://www.youtube.com/watch?t=1807&v=l86gpYbQFzY)

So what we're going to say is

* [30:08 - 30:10](https://www.youtube.com/watch?t=1808&v=l86gpYbQFzY)

shootHit was going to have whatever

* [30:10 - 30:12](https://www.youtube.com/watch?t=1810&v=l86gpYbQFzY)

it is we hit, we know we hit something.

* [30:12 - 30:13](https://www.youtube.com/watch?t=1812&v=l86gpYbQFzY)

So we're going to say

* [30:13 - 30:17](https://www.youtube.com/watch?t=1813&v=l86gpYbQFzY)

shootHit.collider.GetComponent

* [30:17 - 30:19](https://www.youtube.com/watch?t=1817&v=l86gpYbQFzY)

So whatever it is I shoot I'm going to say

* [30:19 - 30:21](https://www.youtube.com/watch?t=1819&v=l86gpYbQFzY)

give me your enemy health script and I'm going to store it.

* [30:21 - 30:23](https://www.youtube.com/watch?t=1821&v=l86gpYbQFzY)

We need the enemy health script so we can

* [30:23 - 30:26](https://www.youtube.com/watch?t=1823&v=l86gpYbQFzY)

reduce the life of the enemy.

* [30:26 - 30:28](https://www.youtube.com/watch?t=1826&v=l86gpYbQFzY)

But what if we shot a wall?

* [30:28 - 30:30](https://www.youtube.com/watch?t=1828&v=l86gpYbQFzY)

Or the ground?

* [30:30 - 30:31](https://www.youtube.com/watch?t=1830&v=l86gpYbQFzY)

Or some Legos?

* [30:31 - 30:33](https://www.youtube.com/watch?t=1831&v=l86gpYbQFzY)

Those do not have an enemy health script,

* [30:33 - 30:36](https://www.youtube.com/watch?t=1833&v=l86gpYbQFzY)

those are not able to

* [30:36 - 30:38](https://www.youtube.com/watch?t=1836&v=l86gpYbQFzY)

have health taken away from them.

* [30:38 - 30:40](https://www.youtube.com/watch?t=1838&v=l86gpYbQFzY)

So if we attempt to access that enemy health script

* [30:40 - 30:42](https://www.youtube.com/watch?t=1840&v=l86gpYbQFzY)

right away it's not going to work

* [30:42 - 30:44](https://www.youtube.com/watch?t=1842&v=l86gpYbQFzY)

and we're going to get an error and the whole thing's

* [30:44 - 30:45](https://www.youtube.com/watch?t=1844&v=l86gpYbQFzY)

going to stop working.

* [30:45 - 30:47](https://www.youtube.com/watch?t=1845&v=l86gpYbQFzY)

So what we need to do next is

* [30:47 - 30:50](https://www.youtube.com/watch?t=1847&v=l86gpYbQFzY)

we need to say if the enemy health script

* [30:50 - 30:51](https://www.youtube.com/watch?t=1850&v=l86gpYbQFzY)

does not equal null,

* [30:51 - 30:53](https://www.youtube.com/watch?t=1851&v=l86gpYbQFzY)

this is specifically in here to

* [30:53 - 30:55](https://www.youtube.com/watch?t=1853&v=l86gpYbQFzY)

show you that this

* [30:55 - 30:58](https://www.youtube.com/watch?t=1855&v=l86gpYbQFzY)

function will work even if that component does not

* [30:58 - 31:01](https://www.youtube.com/watch?t=1858&v=l86gpYbQFzY)

It's just going to give you null, and null means nothing.

* [31:01 - 31:03](https://www.youtube.com/watch?t=1861&v=l86gpYbQFzY)

It means one does not exist.

* [31:03 - 31:05](https://www.youtube.com/watch?t=1863&v=l86gpYbQFzY)

So now we need to check it. We need today

* [31:05 - 31:07](https://www.youtube.com/watch?t=1865&v=l86gpYbQFzY)

'hey, by the way, if that

* [31:07 - 31:10](https://www.youtube.com/watch?t=1867&v=l86gpYbQFzY)

actually exists we're going to do

* [31:10 - 31:12](https://www.youtube.com/watch?t=1870&v=l86gpYbQFzY)

enemyHealth.TakeDamage.

* [31:12 - 31:14](https://www.youtube.com/watch?t=1872&v=l86gpYbQFzY)

We're going to parse in our damagePerShot

* [31:14 - 31:16](https://www.youtube.com/watch?t=1874&v=l86gpYbQFzY)

and exactly where we hit it,

* [31:16 - 31:18](https://www.youtube.com/watch?t=1876&v=l86gpYbQFzY)

that's a really nice thing about raycasting too,

* [31:18 - 31:20](https://www.youtube.com/watch?t=1878&v=l86gpYbQFzY)

instead of just having a generic effect

* [31:20 - 31:22](https://www.youtube.com/watch?t=1880&v=l86gpYbQFzY)

if we shoot on the shoulder that's where

* [31:22 - 31:24](https://www.youtube.com/watch?t=1882&v=l86gpYbQFzY)

we hit it, the shoulder, wherever,

* [31:24 - 31:26](https://www.youtube.com/watch?t=1884&v=l86gpYbQFzY)

we get to put the effects exactly

* [31:26 - 31:28](https://www.youtube.com/watch?t=1886&v=l86gpYbQFzY)

where we hit it, which is pretty neat.

* [31:28 - 31:30](https://www.youtube.com/watch?t=1888&v=l86gpYbQFzY)

If you remember in the enemy health script

* [31:30 - 31:32](https://www.youtube.com/watch?t=1890&v=l86gpYbQFzY)

TakeDamage, if I just jump back to that,

* [31:32 - 31:34](https://www.youtube.com/watch?t=1892&v=l86gpYbQFzY)

very briefly.

* [31:35 - 31:40](https://www.youtube.com/watch?t=1895&v=l86gpYbQFzY)

We can see that there is a vector3 hitPoint.

* [31:40 - 31:42](https://www.youtube.com/watch?t=1900&v=l86gpYbQFzY)

So you can see that TakeDamage here

* [31:42 - 31:44](https://www.youtube.com/watch?t=1902&v=l86gpYbQFzY)

needs to have a vector3, needs to have a position

* [31:44 - 31:46](https://www.youtube.com/watch?t=1904&v=l86gpYbQFzY)

in order to move the hitParticles to

* [31:46 - 31:48](https://www.youtube.com/watch?t=1906&v=l86gpYbQFzY)

where they need to be

* [31:48 - 31:50](https://www.youtube.com/watch?t=1908&v=l86gpYbQFzY)

so in PlayerShooting that's exactly what we

* [31:50 - 31:51](https://www.youtube.com/watch?t=1910&v=l86gpYbQFzY)

provide using that raycast.

* [31:51 - 31:56](https://www.youtube.com/watch?t=1911&v=l86gpYbQFzY)

Whether or not whatever we've shot has an enemy health script,

* [31:56 - 31:59](https://www.youtube.com/watch?t=1916&v=l86gpYbQFzY)

regardless of whatever it is we still hit something

* [31:59 - 32:04](https://www.youtube.com/watch?t=1919&v=l86gpYbQFzY)

and thus we say gunLine.SetPosition (1), meaning the second point

* [32:04 - 32:06](https://www.youtube.com/watch?t=1924&v=l86gpYbQFzY)

and we parse in that point that we hit.

* [32:06 - 32:08](https://www.youtube.com/watch?t=1926&v=l86gpYbQFzY)

So whether we're hitting an enemy or the wall or

* [32:08 - 32:09](https://www.youtube.com/watch?t=1928&v=l86gpYbQFzY)

some Legos or whatever,

* [32:09 - 32:11](https://www.youtube.com/watch?t=1929&v=l86gpYbQFzY)

we now have our line

* [32:11 - 32:14](https://www.youtube.com/watch?t=1931&v=l86gpYbQFzY)

the beginning of the gun to the object that we hit.

* [32:14 - 32:15](https://www.youtube.com/watch?t=1934&v=l86gpYbQFzY)

1 line.

* [32:15 - 32:17](https://www.youtube.com/watch?t=1935&v=l86gpYbQFzY)

When we were prototyping this game

* [32:17 - 32:19](https://www.youtube.com/watch?t=1937&v=l86gpYbQFzY)

we just had the raycast shoot by

* [32:19 - 32:21](https://www.youtube.com/watch?t=1939&v=l86gpYbQFzY)

100 units but then we realised that actually it makes more

* [32:21 - 32:23](https://www.youtube.com/watch?t=1941&v=l86gpYbQFzY)

sense if the gunLine stops at

* [32:23 - 32:25](https://www.youtube.com/watch?t=1943&v=l86gpYbQFzY)

that point, we could expand upon

* [32:25 - 32:27](https://www.youtube.com/watch?t=1945&v=l86gpYbQFzY)

the idea to have effects like ricochets

* [32:27 - 32:29](https://www.youtube.com/watch?t=1947&v=l86gpYbQFzY)

and things like that but we didn't want to get too bogged down.

* [32:29 - 32:31](https://www.youtube.com/watch?t=1949&v=l86gpYbQFzY)

So actually what this is saying is

* [32:31 - 32:33](https://www.youtube.com/watch?t=1951&v=l86gpYbQFzY)

if we hit something

* [32:33 - 32:35](https://www.youtube.com/watch?t=1953&v=l86gpYbQFzY)

then we end that line renderers second

* [32:35 - 32:37](https://www.youtube.com/watch?t=1955&v=l86gpYbQFzY)

point or it's end point at

* [32:37 - 32:39](https://www.youtube.com/watch?t=1957&v=l86gpYbQFzY)

the point at which the ray hit it,

* [32:39 - 32:41](https://www.youtube.com/watch?t=1959&v=l86gpYbQFzY)

so when we shoot a bit of the environment

* [32:41 - 32:43](https://www.youtube.com/watch?t=1961&v=l86gpYbQFzY)

it's going to stop at that point,

* [32:43 - 32:45](https://www.youtube.com/watch?t=1963&v=l86gpYbQFzY)

likewise with the enemies.

* [32:45 - 32:47](https://www.youtube.com/watch?t=1965&v=l86gpYbQFzY)

So all of that happens

* [32:47 - 32:49](https://www.youtube.com/watch?t=1967&v=l86gpYbQFzY)

if we hit something.

* [32:49 - 32:52](https://www.youtube.com/watch?t=1969&v=l86gpYbQFzY)

What if we don't hit something? That's our else.

* [32:52 - 32:55](https://www.youtube.com/watch?t=1972&v=l86gpYbQFzY)

We're going to say gunLine.SetPosition

* [32:55 - 32:57](https://www.youtube.com/watch?t=1975&v=l86gpYbQFzY)

1 again because it's the second point,

* [32:57 - 32:59](https://www.youtube.com/watch?t=1977&v=l86gpYbQFzY)

the second part of the line, and what we're

* [32:59 - 33:04](https://www.youtube.com/watch?t=1979&v=l86gpYbQFzY)

going to say is shootRay.origin, so where the ray starts,

* [33:04 - 33:09](https://www.youtube.com/watch?t=1984&v=l86gpYbQFzY)

+ shootRay.direction \* range;

* [33:09 - 33:11](https://www.youtube.com/watch?t=1989&v=l86gpYbQFzY)

So what that's going to mean is it'll take

* [33:11 - 33:15](https://www.youtube.com/watch?t=1991&v=l86gpYbQFzY)

the point and then it's going to multiply (0, 0, 1)

* [33:15 - 33:17](https://www.youtube.com/watch?t=1995&v=l86gpYbQFzY)

because that's forward in the Z direction,

* [33:17 - 33:19](https://www.youtube.com/watch?t=1997&v=l86gpYbQFzY)

by 100, which is the range, and it's going to say

* [33:19 - 33:21](https://www.youtube.com/watch?t=1999&v=l86gpYbQFzY)

this point and then take it way down there

* [33:21 - 33:23](https://www.youtube.com/watch?t=2001&v=l86gpYbQFzY)

and then that point, and then it's going to draw a line.

* [33:23 - 33:25](https://www.youtube.com/watch?t=2003&v=l86gpYbQFzY)

So it's really simple, it'll say

* [33:25 - 33:28](https://www.youtube.com/watch?t=2005&v=l86gpYbQFzY)

one end, the other end, we're going to draw a line between it.

* [33:28 - 33:30](https://www.youtube.com/watch?t=2008&v=l86gpYbQFzY)

So a lot of physics stuff in there but basically

* [33:30 - 33:32](https://www.youtube.com/watch?t=2010&v=l86gpYbQFzY)

we're just attempting to point at something

* [33:32 - 33:34](https://www.youtube.com/watch?t=2012&v=l86gpYbQFzY)

and if we're successful at

* [33:34 - 33:36](https://www.youtube.com/watch?t=2014&v=l86gpYbQFzY)

pointing at something we're going to draw a line to it

* [33:36 - 33:38](https://www.youtube.com/watch?t=2016&v=l86gpYbQFzY)

and take damage from it, otherwise we're just going to draw the line.

* [33:38 - 33:40](https://www.youtube.com/watch?t=2018&v=l86gpYbQFzY)

So the else there effectively

* [33:40 - 33:42](https://www.youtube.com/watch?t=2020&v=l86gpYbQFzY)

is giving us the ability to shoot in

* [33:42 - 33:44](https://www.youtube.com/watch?t=2022&v=l86gpYbQFzY)

a direction if we don't hit something on the

* [33:44 - 33:45](https://www.youtube.com/watch?t=2024&v=l86gpYbQFzY)

on the shootable layer.

* [33:45 - 33:48](https://www.youtube.com/watch?t=2025&v=l86gpYbQFzY)

So if you remember that the level is basically a box,

* [33:48 - 33:50](https://www.youtube.com/watch?t=2028&v=l86gpYbQFzY)

if you're aiming around in the other direction

* [33:50 - 33:52](https://www.youtube.com/watch?t=2030&v=l86gpYbQFzY)

and you're effectively raycasting off

* [33:52 - 33:54](https://www.youtube.com/watch?t=2032&v=l86gpYbQFzY)

of the screen you still want to see the

* [33:54 - 33:56](https://www.youtube.com/watch?t=2034&v=l86gpYbQFzY)

gun fire so we're just giving it a range

* [33:56 - 33:58](https://www.youtube.com/watch?t=2036&v=l86gpYbQFzY)

of 100, which is outside of the camera

* [33:58 - 34:01](https://www.youtube.com/watch?t=2038&v=l86gpYbQFzY)

frustum, the view that you can see so we're

* [34:01 - 34:04](https://www.youtube.com/watch?t=2041&v=l86gpYbQFzY)

just spraying bullets around even though we don't hit anything.

* [34:06 - 34:08](https://www.youtube.com/watch?t=2046&v=l86gpYbQFzY)

What we'll do now that the gun barrel

* [34:08 - 34:10](https://www.youtube.com/watch?t=2048&v=l86gpYbQFzY)

script is on there is save our scene

* [34:10 - 34:12](https://www.youtube.com/watch?t=2050&v=l86gpYbQFzY)

if you haven't saved in a while.

* [34:12 - 34:14](https://www.youtube.com/watch?t=2052&v=l86gpYbQFzY)

Now with the player selected

* [34:14 - 34:16](https://www.youtube.com/watch?t=2054&v=l86gpYbQFzY)

in the hierarchy we're going to

* [34:16 - 34:18](https://www.youtube.com/watch?t=2056&v=l86gpYbQFzY)

look at the Apply button in the upper

* [34:18 - 34:19](https://www.youtube.com/watch?t=2058&v=l86gpYbQFzY)

right hand corner

* [34:19 - 34:21](https://www.youtube.com/watch?t=2059&v=l86gpYbQFzY)

You'll recall we clicked and dragged the player

* [34:21 - 34:23](https://www.youtube.com/watch?t=2061&v=l86gpYbQFzY)

and turned it in to a prefab but the

* [34:23 - 34:25](https://www.youtube.com/watch?t=2063&v=l86gpYbQFzY)

prefab that we have on file is now

* [34:25 - 34:27](https://www.youtube.com/watch?t=2065&v=l86gpYbQFzY)

slightly different than the prefab we have in our scene.

* [34:27 - 34:29](https://www.youtube.com/watch?t=2067&v=l86gpYbQFzY)

The one on file doesn't have all the

* [34:29 - 34:30](https://www.youtube.com/watch?t=2069&v=l86gpYbQFzY)

changes we just made

* [34:30 - 34:32](https://www.youtube.com/watch?t=2070&v=l86gpYbQFzY)

If we would like to update the one we have

* [34:32 - 34:34](https://www.youtube.com/watch?t=2072&v=l86gpYbQFzY)

on file we have to click the Apply button

* [34:34 - 34:36](https://www.youtube.com/watch?t=2074&v=l86gpYbQFzY)

in the upper right hand corner.

* [34:36 - 34:39](https://www.youtube.com/watch?t=2076&v=l86gpYbQFzY)

That will apply all of the changes we've made

* [34:39 - 34:41](https://www.youtube.com/watch?t=2079&v=l86gpYbQFzY)

to the copy we have on file,

* [34:41 - 34:43](https://www.youtube.com/watch?t=2081&v=l86gpYbQFzY)

thus saving it, if you will.

* [34:43 - 34:45](https://www.youtube.com/watch?t=2083&v=l86gpYbQFzY)

The way that you notice the difference between

* [34:45 - 34:48](https://www.youtube.com/watch?t=2085&v=l86gpYbQFzY)

a prefab and a prefab that

* [34:48 - 34:50](https://www.youtube.com/watch?t=2088&v=l86gpYbQFzY)

needs updating is that somethings will appear

* [34:50 - 34:52](https://www.youtube.com/watch?t=2090&v=l86gpYbQFzY)

in bold, so if you note the difference between

* [34:52 - 34:54](https://www.youtube.com/watch?t=2092&v=l86gpYbQFzY)

Player Movement's properties and

* [34:54 - 34:56](https://www.youtube.com/watch?t=2094&v=l86gpYbQFzY)

Player Health's which is added after

* [34:56 - 34:58](https://www.youtube.com/watch?t=2096&v=l86gpYbQFzY)

that we made it in to a prefab

* [34:58 - 35:01](https://www.youtube.com/watch?t=2098&v=l86gpYbQFzY)

you'll see that these are in bold and when I update

* [35:01 - 35:04](https://www.youtube.com/watch?t=2101&v=l86gpYbQFzY)

or apply the changes and look back down

* [35:04 - 35:06](https://www.youtube.com/watch?t=2104&v=l86gpYbQFzY)

some of them change so that the things

* [35:06 - 35:08](https://www.youtube.com/watch?t=2106&v=l86gpYbQFzY)

that are still bold are things that are in the scene.

* [35:09 - 35:11](https://www.youtube.com/watch?t=2109&v=l86gpYbQFzY)

So now we know that's up to date we can carry on

* [35:11 - 35:13](https://www.youtube.com/watch?t=2111&v=l86gpYbQFzY)

using it in other scenes and if

* [35:13 - 35:15](https://www.youtube.com/watch?t=2113&v=l86gpYbQFzY)

there are instances of this prefab elsewhere

* [35:15 - 35:17](https://www.youtube.com/watch?t=2115&v=l86gpYbQFzY)

then you would see those changes are

* [35:17 - 35:19](https://www.youtube.com/watch?t=2117&v=l86gpYbQFzY)

automatically applied.

* [35:19 - 35:21](https://www.youtube.com/watch?t=2119&v=l86gpYbQFzY)

Let's go ahead and everyone

* [35:21 - 35:23](https://www.youtube.com/watch?t=2121&v=l86gpYbQFzY)

turn your volume down because we're about to test this.

* [35:23 - 35:25](https://www.youtube.com/watch?t=2123&v=l86gpYbQFzY)

Cool, let's see how loud it is.

* [35:28 - 35:29](https://www.youtube.com/watch?t=2128&v=l86gpYbQFzY)

Oh yeah!

* [35:30 - 35:31](https://www.youtube.com/watch?t=2130&v=l86gpYbQFzY)

That's what I'm talking about,

* [35:31 - 35:33](https://www.youtube.com/watch?t=2131&v=l86gpYbQFzY)

that's an American gun right there.

* [35:36 - 35:38](https://www.youtube.com/watch?t=2136&v=l86gpYbQFzY)

Just to reiterate, do not worry about

* [35:38 - 35:40](https://www.youtube.com/watch?t=2138&v=l86gpYbQFzY)

this error that you will see appearing at the

* [35:40 - 35:42](https://www.youtube.com/watch?t=2140&v=l86gpYbQFzY)

bottom of the screen, it's deliberate,

* [35:42 - 35:45](https://www.youtube.com/watch?t=2142&v=l86gpYbQFzY)

this actual mistake is a genuine mistake

* [35:45 - 35:47](https://www.youtube.com/watch?t=2145&v=l86gpYbQFzY)

that we want to show you how to fix.

* [35:48 - 35:50](https://www.youtube.com/watch?t=2148&v=l86gpYbQFzY)

What you will notice is that at the

* [35:50 - 35:53](https://www.youtube.com/watch?t=2150&v=l86gpYbQFzY)

bottom of the screen you have an error.

* [35:53 - 35:55](https://www.youtube.com/watch?t=2153&v=l86gpYbQFzY)

So just to give you some insight on

* [35:55 - 35:57](https://www.youtube.com/watch?t=2155&v=l86gpYbQFzY)

catching errors in Unity.

* [35:57 - 35:59](https://www.youtube.com/watch?t=2157&v=l86gpYbQFzY)

Sometimes there'll be a compile error,

* [35:59 - 36:01](https://www.youtube.com/watch?t=2159&v=l86gpYbQFzY)

in that you've written something wrong in a script

* [36:01 - 36:03](https://www.youtube.com/watch?t=2161&v=l86gpYbQFzY)

and the bottom of the screen

* [36:03 - 36:06](https://www.youtube.com/watch?t=2163&v=l86gpYbQFzY)

will show you where and what in that script has happened.

* [36:07 - 36:10](https://www.youtube.com/watch?t=2167&v=l86gpYbQFzY)

And this is all contained within the console.

* [36:10 - 36:12](https://www.youtube.com/watch?t=2170&v=l86gpYbQFzY)

So if you go to Window - Console

* [36:12 - 36:14](https://www.youtube.com/watch?t=2172&v=l86gpYbQFzY)

you will see that there are a lot

* [36:14 - 36:17](https://www.youtube.com/watch?t=2174&v=l86gpYbQFzY)

of errors saying all about the same thing,

* [36:17 - 36:20](https://www.youtube.com/watch?t=2177&v=l86gpYbQFzY)

'set destination can only be called

* [36:20 - 36:22](https://www.youtube.com/watch?t=2180&v=l86gpYbQFzY)

on an active agent that has been

* [36:22 - 36:24](https://www.youtube.com/watch?t=2182&v=l86gpYbQFzY)

placed on a nav mesh'.

* [36:24 - 36:26](https://www.youtube.com/watch?t=2184&v=l86gpYbQFzY)

So remember that the word 'agent'

* [36:26 - 36:28](https://www.youtube.com/watch?t=2186&v=l86gpYbQFzY)

is referring to the enemy,

* [36:28 - 36:31](https://www.youtube.com/watch?t=2188&v=l86gpYbQFzY)

the enemy has that nav mesh agent component

* [36:31 - 36:33](https://www.youtube.com/watch?t=2191&v=l86gpYbQFzY)

and set destination is the function of code

* [36:33 - 36:36](https://www.youtube.com/watch?t=2193&v=l86gpYbQFzY)

that we used to tell it to seek out the player.

* [36:36 - 36:40](https://www.youtube.com/watch?t=2196&v=l86gpYbQFzY)

So we said nav.setDestination player.position.

* [36:41 - 36:43](https://www.youtube.com/watch?t=2201&v=l86gpYbQFzY)

What is actually happening there is that there is

* [36:43 - 36:46](https://www.youtube.com/watch?t=2203&v=l86gpYbQFzY)

a problem in our Enemy Movement script.

* [36:47 - 36:49](https://www.youtube.com/watch?t=2207&v=l86gpYbQFzY)

What we can do is double click on that

* [36:49 - 36:51](https://www.youtube.com/watch?t=2209&v=l86gpYbQFzY)

error in the console.

* [36:51 - 36:53](https://www.youtube.com/watch?t=2211&v=l86gpYbQFzY)

Watch that one more time, I double click that and it

* [36:53 - 36:56](https://www.youtube.com/watch?t=2213&v=l86gpYbQFzY)

takes me to what's causing that error.

* [36:57 - 36:59](https://www.youtube.com/watch?t=2217&v=l86gpYbQFzY)

And if you recall earlier we mentioned

* [36:59 - 37:01](https://www.youtube.com/watch?t=2219&v=l86gpYbQFzY)

that there are some bits of code that are

* [37:01 - 37:04](https://www.youtube.com/watch?t=2221&v=l86gpYbQFzY)

commented out, that are disabled currently in this.

* [37:04 - 37:07](https://www.youtube.com/watch?t=2224&v=l86gpYbQFzY)

When we first made the enemy chase after you

* [37:07 - 37:09](https://www.youtube.com/watch?t=2227&v=l86gpYbQFzY)

we didn't have a concept of

* [37:09 - 37:11](https://www.youtube.com/watch?t=2229&v=l86gpYbQFzY)

the enemy's health or the player's health.

* [37:11 - 37:13](https://www.youtube.com/watch?t=2231&v=l86gpYbQFzY)

So having those things in our script

* [37:13 - 37:15](https://www.youtube.com/watch?t=2233&v=l86gpYbQFzY)

wouldn't have made any sense.

* [37:16 - 37:19](https://www.youtube.com/watch?t=2236&v=l86gpYbQFzY)

So now we do have those things.

* [37:19 - 37:22](https://www.youtube.com/watch?t=2239&v=l86gpYbQFzY)

The player can be killed or the enemy can be killed

* [37:22 - 37:25](https://www.youtube.com/watch?t=2242&v=l86gpYbQFzY)

and if it is then

* [37:25 - 37:27](https://www.youtube.com/watch?t=2245&v=l86gpYbQFzY)

setting it's destination on the nav mesh

* [37:27 - 37:29](https://www.youtube.com/watch?t=2247&v=l86gpYbQFzY)

doesn't make any sense any more

* [37:29 - 37:31](https://www.youtube.com/watch?t=2249&v=l86gpYbQFzY)

so it's creating an error.

* [37:31 - 37:33](https://www.youtube.com/watch?t=2251&v=l86gpYbQFzY)

So now what we can do is we can

* [37:33 - 37:35](https://www.youtube.com/watch?t=2253&v=l86gpYbQFzY)

bring back those references to

* [37:35 - 37:37](https://www.youtube.com/watch?t=2255&v=l86gpYbQFzY)

the enemy's health and the player's health

* [37:37 - 37:41](https://www.youtube.com/watch?t=2257&v=l86gpYbQFzY)

and every time we do an update

* [37:41 - 37:43](https://www.youtube.com/watch?t=2261&v=l86gpYbQFzY)

we want to check if both the player and the enemy

* [37:43 - 37:46](https://www.youtube.com/watch?t=2263&v=l86gpYbQFzY)

are alive before we say

* [37:47 - 37:49](https://www.youtube.com/watch?t=2267&v=l86gpYbQFzY)

setDesination, because if they're not

* [37:49 - 37:50](https://www.youtube.com/watch?t=2269&v=l86gpYbQFzY)

then we're in trouble.

* [37:50 - 37:51](https://www.youtube.com/watch?t=2270&v=l86gpYbQFzY)

I'm going to use a shortcut here

* [37:51 - 37:54](https://www.youtube.com/watch?t=2271&v=l86gpYbQFzY)

I'll teach you which is command /

* [37:54 - 37:57](https://www.youtube.com/watch?t=2274&v=l86gpYbQFzY)

which is a way of commenting out and entire line.

* [37:57 - 37:59](https://www.youtube.com/watch?t=2277&v=l86gpYbQFzY)

That's control / for you PC folk.

* [37:59 - 38:02](https://www.youtube.com/watch?t=2279&v=l86gpYbQFzY)

Yes, for PC, and we can do all of this at once.

* [38:03 - 38:06](https://www.youtube.com/watch?t=2283&v=l86gpYbQFzY)

We've re-enabled this if statement and

* [38:06 - 38:08](https://www.youtube.com/watch?t=2286&v=l86gpYbQFzY)

else structure around this to just check

* [38:08 - 38:10](https://www.youtube.com/watch?t=2288&v=l86gpYbQFzY)

those different scripts, so it's checking the

* [38:10 - 38:12](https://www.youtube.com/watch?t=2290&v=l86gpYbQFzY)

enemy's health, it's checking the player's health

* [38:12 - 38:14](https://www.youtube.com/watch?t=2292&v=l86gpYbQFzY)

and if they're both more than 0 then it should

* [38:14 - 38:17](https://www.youtube.com/watch?t=2294&v=l86gpYbQFzY)

keep trying to seek out the player.

* [38:17 - 38:20](https://www.youtube.com/watch?t=2297&v=l86gpYbQFzY)

But if they're not then we switch off the nav mesh agent.

* [38:20 - 38:23](https://www.youtube.com/watch?t=2300&v=l86gpYbQFzY)

So the error that we were having in Unity

* [38:23 - 38:26](https://www.youtube.com/watch?t=2303&v=l86gpYbQFzY)

is saying that setDestination is effectively invalid

* [38:26 - 38:28](https://www.youtube.com/watch?t=2306&v=l86gpYbQFzY)

and we're solving that by checking

* [38:28 - 38:31](https://www.youtube.com/watch?t=2308&v=l86gpYbQFzY)

if the player is actually dead to do it.

* [38:31 - 38:33](https://www.youtube.com/watch?t=2311&v=l86gpYbQFzY)

And likewise if the enemy has enough health

* [38:33 - 38:34](https://www.youtube.com/watch?t=2313&v=l86gpYbQFzY)

to be moving around.

* [38:34 - 38:36](https://www.youtube.com/watch?t=2314&v=l86gpYbQFzY)

If not we switch off that component

* [38:36 - 38:40](https://www.youtube.com/watch?t=2316&v=l86gpYbQFzY)

by using .enabled = false.

* [38:41 - 38:44](https://www.youtube.com/watch?t=2321&v=l86gpYbQFzY)

So uncomment those lines in Enemy Movement,

* [38:44 - 38:47](https://www.youtube.com/watch?t=2324&v=l86gpYbQFzY)

save the script and then return to Unity.

* [38:47 - 38:49](https://www.youtube.com/watch?t=2327&v=l86gpYbQFzY)

Basically all of Enemy Movement should

* [38:49 - 38:51](https://www.youtube.com/watch?t=2329&v=l86gpYbQFzY)

now be enabled, you shouldn't have any comments

* [38:51 - 38:53](https://www.youtube.com/watch?t=2331&v=l86gpYbQFzY)

in it at all and that should get you to the

* [38:53 - 38:55](https://www.youtube.com/watch?t=2333&v=l86gpYbQFzY)

same point as us.

* [38:55 - 38:58](https://www.youtube.com/watch?t=2335&v=l86gpYbQFzY)

Okay, so the last part of this

* [38:58 - 39:01](https://www.youtube.com/watch?t=2338&v=l86gpYbQFzY)

is to look at the Player Health script.

* [39:02 - 39:04](https://www.youtube.com/watch?t=2342&v=l86gpYbQFzY)

What we're going to do is

* [39:04 - 39:06](https://www.youtube.com/watch?t=2344&v=l86gpYbQFzY)

reopen the Player Health script,

* [39:06 - 39:08](https://www.youtube.com/watch?t=2346&v=l86gpYbQFzY)

so if you double click on it

* [39:08 - 39:10](https://www.youtube.com/watch?t=2348&v=l86gpYbQFzY)

so go in to Scripts - Player

* [39:10 - 39:12](https://www.youtube.com/watch?t=2350&v=l86gpYbQFzY)

double click on the icon to open it.

* [39:13 - 39:15](https://www.youtube.com/watch?t=2353&v=l86gpYbQFzY)

And you'll see that

* [39:16 - 39:18](https://www.youtube.com/watch?t=2356&v=l86gpYbQFzY)

on the player's death

* [39:19 - 39:21](https://www.youtube.com/watch?t=2359&v=l86gpYbQFzY)

we've got some commented stuff here,

* [39:21 - 39:23](https://www.youtube.com/watch?t=2361&v=l86gpYbQFzY)

so we want to be able to put that back in

* [39:23 - 39:24](https://www.youtube.com/watch?t=2363&v=l86gpYbQFzY)

so that when the player dies

* [39:24 - 39:26](https://www.youtube.com/watch?t=2364&v=l86gpYbQFzY)

he can no longer shoot his gun.

* [39:26 - 39:29](https://www.youtube.com/watch?t=2366&v=l86gpYbQFzY)

But we haven't got our references to PlayerShooting yet.

* [39:29 - 39:31](https://www.youtube.com/watch?t=2369&v=l86gpYbQFzY)

Because it's turning red it's saying

* [39:31 - 39:33](https://www.youtube.com/watch?t=2371&v=l86gpYbQFzY)

'I don't know what PlayerShooting is and I

* [39:33 - 39:34](https://www.youtube.com/watch?t=2373&v=l86gpYbQFzY)

don't know what DisableEffects is'.

* [39:34 - 39:36](https://www.youtube.com/watch?t=2374&v=l86gpYbQFzY)

It can't find the reference to that so it's

* [39:36 - 39:38](https://www.youtube.com/watch?t=2376&v=l86gpYbQFzY)

turning red to alert us that there's a problem.

* [39:38 - 39:40](https://www.youtube.com/watch?t=2378&v=l86gpYbQFzY)

So on line 19

* [39:41 - 39:44](https://www.youtube.com/watch?t=2381&v=l86gpYbQFzY)

PlayerShooting, reference to the PlayerShooting script

* [39:44 - 39:46](https://www.youtube.com/watch?t=2384&v=l86gpYbQFzY)

which we've named the same.

* [39:46 - 39:48](https://www.youtube.com/watch?t=2386&v=l86gpYbQFzY)

So this can cause some confusion.

* [39:48 - 39:50](https://www.youtube.com/watch?t=2388&v=l86gpYbQFzY)

We've got PlayerMovement, PlayerMovement

* [39:50 - 39:52](https://www.youtube.com/watch?t=2390&v=l86gpYbQFzY)

remember this is the type, which is the name

* [39:52 - 39:54](https://www.youtube.com/watch?t=2392&v=l86gpYbQFzY)

of the script, and this is the name of the variable.

* [39:54 - 39:56](https://www.youtube.com/watch?t=2394&v=l86gpYbQFzY)

Names of variables can of course be anything

* [39:56 - 39:58](https://www.youtube.com/watch?t=2396&v=l86gpYbQFzY)

you want them to be but if I name PlayerMovement

* [39:58 - 40:01](https://www.youtube.com/watch?t=2398&v=l86gpYbQFzY)

Blah I will have to write Blah anywhere else.

* [40:01 - 40:03](https://www.youtube.com/watch?t=2401&v=l86gpYbQFzY)

But we're not going to do that.

* [40:03 - 40:05](https://www.youtube.com/watch?t=2403&v=l86gpYbQFzY)

We've named it something sensible, which means it's going to

* [40:05 - 40:08](https://www.youtube.com/watch?t=2405&v=l86gpYbQFzY)

sync up with the other instances and work.

* [40:08 - 40:10](https://www.youtube.com/watch?t=2408&v=l86gpYbQFzY)

So the last thing we need to uncomment is

* [40:10 - 40:12](https://www.youtube.com/watch?t=2410&v=l86gpYbQFzY)

the GetComponentInChildren

* [40:12 - 40:14](https://www.youtube.com/watch?t=2412&v=l86gpYbQFzY)

for PlayerShooting because remember

* [40:14 - 40:16](https://www.youtube.com/watch?t=2414&v=l86gpYbQFzY)

that the PlayerShooting script is on the

* [40:16 - 40:18](https://www.youtube.com/watch?t=2416&v=l86gpYbQFzY)

GunBarrelEnd, it's not on the Player

* [40:18 - 40:21](https://www.youtube.com/watch?t=2418&v=l86gpYbQFzY)

so we need to find that component in the children.

* [40:21 - 40:23](https://www.youtube.com/watch?t=2421&v=l86gpYbQFzY)

And now we've got our references and we've already

* [40:23 - 40:28](https://www.youtube.com/watch?t=2423&v=l86gpYbQFzY)

uncommented the codes about shooting when dead.

* [40:28 - 40:30](https://www.youtube.com/watch?t=2428&v=l86gpYbQFzY)

They're no longer red.

* [40:30 - 40:32](https://www.youtube.com/watch?t=2430&v=l86gpYbQFzY)

So it should all work.

* [40:32 - 40:34](https://www.youtube.com/watch?t=2432&v=l86gpYbQFzY)

Make sure that you save your script.

* [40:34 - 40:37](https://www.youtube.com/watch?t=2434&v=l86gpYbQFzY)

It's very important, and switch back to Unity.

* [40:37 - 40:40](https://www.youtube.com/watch?t=2437&v=l86gpYbQFzY)

You can then go ahead and play

* [40:41 - 40:42](https://www.youtube.com/watch?t=2441&v=l86gpYbQFzY)

and test your game.

* [40:44 - 40:46](https://www.youtube.com/watch?t=2444&v=l86gpYbQFzY)

Now we can kill them, there's no more error

* [40:46 - 40:49](https://www.youtube.com/watch?t=2446&v=l86gpYbQFzY)

about the nav mesh destination.

* [40:49 - 40:51](https://www.youtube.com/watch?t=2449&v=l86gpYbQFzY)

It's a very easy game, 1 enemy.

* [40:53 - 40:55](https://www.youtube.com/watch?t=2453&v=l86gpYbQFzY)

And we can also be killed by them.

* [41:00 - 41:02](https://www.youtube.com/watch?t=2460&v=l86gpYbQFzY)

So that is the end of phase 7.

# Phase 8

* So far we have a game
* [00:02 - 00:05](https://www.youtube.com/watch?t=2&v=SOmBhbVz5yQ)

where we can shoot a singular enemy

* [00:05 - 00:07](https://www.youtube.com/watch?t=5&v=SOmBhbVz5yQ)

and you can be killed by

* [00:07 - 00:09](https://www.youtube.com/watch?t=7&v=SOmBhbVz5yQ)

that very same enemy.

* [00:09 - 00:11](https://www.youtube.com/watch?t=9&v=SOmBhbVz5yQ)

But currently

* [00:11 - 00:14](https://www.youtube.com/watch?t=11&v=SOmBhbVz5yQ)

there is no way to score points.

* [00:14 - 00:16](https://www.youtube.com/watch?t=14&v=SOmBhbVz5yQ)

So we want to add more to our UI

* [00:16 - 00:18](https://www.youtube.com/watch?t=16&v=SOmBhbVz5yQ)

and we want to add the ability to

* [00:18 - 00:20](https://www.youtube.com/watch?t=18&v=SOmBhbVz5yQ)

score points and represent that inside

* [00:20 - 00:21](https://www.youtube.com/watch?t=20&v=SOmBhbVz5yQ)

our UI as well.

* [00:21 - 00:23](https://www.youtube.com/watch?t=21&v=SOmBhbVz5yQ)

Okay, so, what I want you guys to do

* [00:23 - 00:26](https://www.youtube.com/watch?t=23&v=SOmBhbVz5yQ)

is to take a look back at your hierarchy

* [00:27 - 00:30](https://www.youtube.com/watch?t=27&v=SOmBhbVz5yQ)

and we are going to look at the HUD Canvas.

* [00:30 - 00:32](https://www.youtube.com/watch?t=30&v=SOmBhbVz5yQ)

So the HUD Canvas is our

* [00:32 - 00:34](https://www.youtube.com/watch?t=32&v=SOmBhbVz5yQ)

UI canvas, as you remember earlier we placed

* [00:34 - 00:38](https://www.youtube.com/watch?t=34&v=SOmBhbVz5yQ)

in the Health UI which gives us the slider for our health

* [00:38 - 00:39](https://www.youtube.com/watch?t=38&v=SOmBhbVz5yQ)

and the little heart icon

* [00:39 - 00:41](https://www.youtube.com/watch?t=39&v=SOmBhbVz5yQ)

as well as the damage image.

* [00:41 - 00:45](https://www.youtube.com/watch?t=41&v=SOmBhbVz5yQ)

But this time we are going to create a score text.

* [00:45 - 00:47](https://www.youtube.com/watch?t=45&v=SOmBhbVz5yQ)

So what I'm going to do very quickly is just a the top

* [00:47 - 00:50](https://www.youtube.com/watch?t=47&v=SOmBhbVz5yQ)

of the scene view click the 2D button

* [00:50 - 00:52](https://www.youtube.com/watch?t=50&v=SOmBhbVz5yQ)

to switch back to 2D mode and I'm just

* [00:52 - 00:54](https://www.youtube.com/watch?t=52&v=SOmBhbVz5yQ)

going to zoom right out

* [00:54 - 00:56](https://www.youtube.com/watch?t=54&v=SOmBhbVz5yQ)

or what I can do is double click my HUD Canvas

* [00:56 - 00:59](https://www.youtube.com/watch?t=56&v=SOmBhbVz5yQ)

to frame it and then zoom back in.

* [00:59 - 01:01](https://www.youtube.com/watch?t=59&v=SOmBhbVz5yQ)

What I'm doing is selecting my

* [01:01 - 01:03](https://www.youtube.com/watch?t=61&v=SOmBhbVz5yQ)

rect tool because whenever I work on

* [01:03 - 01:06](https://www.youtube.com/watch?t=63&v=SOmBhbVz5yQ)

UI stuff I want that 5th tool,.

* [01:06 - 01:09](https://www.youtube.com/watch?t=66&v=SOmBhbVz5yQ)

Show us the 2D button really quick while you're zoomed in.

* [01:09 - 01:11](https://www.youtube.com/watch?t=69&v=SOmBhbVz5yQ)

There it is, 2D button.

* [01:13 - 01:15](https://www.youtube.com/watch?t=73&v=SOmBhbVz5yQ)

Once we're in 2D mode we can then

* [01:15 - 01:17](https://www.youtube.com/watch?t=75&v=SOmBhbVz5yQ)

go ahead and create some more UI

* [01:17 - 01:19](https://www.youtube.com/watch?t=77&v=SOmBhbVz5yQ)

so this time we're going to make a

* [01:19 - 01:21](https://www.youtube.com/watch?t=79&v=SOmBhbVz5yQ)

child object of the HUD Canvas.

* [01:21 - 01:23](https://www.youtube.com/watch?t=81&v=SOmBhbVz5yQ)

Therefore I'm going to right click it

* [01:23 - 01:25](https://www.youtube.com/watch?t=83&v=SOmBhbVz5yQ)

go to UI and Text.

* [01:26 - 01:28](https://www.youtube.com/watch?t=86&v=SOmBhbVz5yQ)

So these UI things are basically a

* [01:28 - 01:30](https://www.youtube.com/watch?t=88&v=SOmBhbVz5yQ)

collection of ready-made objects that

* [01:30 - 01:32](https://www.youtube.com/watch?t=90&v=SOmBhbVz5yQ)

you can start working with.

* [01:32 - 01:33](https://www.youtube.com/watch?t=92&v=SOmBhbVz5yQ)

All of the things that are in the UI system,

* [01:33 - 01:35](https://www.youtube.com/watch?t=93&v=SOmBhbVz5yQ)

much like the rest of Unity,

* [01:35 - 01:37](https://www.youtube.com/watch?t=95&v=SOmBhbVz5yQ)

are actually components, so what we're really doing

* [01:37 - 01:39](https://www.youtube.com/watch?t=97&v=SOmBhbVz5yQ)

is creating a new game object

* [01:39 - 01:41](https://www.youtube.com/watch?t=99&v=SOmBhbVz5yQ)

with a text component attached to it.

* [01:41 - 01:43](https://www.youtube.com/watch?t=101&v=SOmBhbVz5yQ)

By default when you make a new text component

* [01:43 - 01:47](https://www.youtube.com/watch?t=103&v=SOmBhbVz5yQ)

you made something that is default Arial text

* [01:47 - 01:49](https://www.youtube.com/watch?t=107&v=SOmBhbVz5yQ)

and it is in grey so that it will

* [01:49 - 01:51](https://www.youtube.com/watch?t=109&v=SOmBhbVz5yQ)

work neutrally on light or dark backgrounds.

* [01:51 - 01:53](https://www.youtube.com/watch?t=111&v=SOmBhbVz5yQ)

So we're going to rename this

* [01:53 - 01:55](https://www.youtube.com/watch?t=113&v=SOmBhbVz5yQ)

The first thing we're going to do is call Text

* [01:55 - 01:59](https://www.youtube.com/watch?t=115&v=SOmBhbVz5yQ)

ScoreText, so capital S and T.

* [01:59 - 02:02](https://www.youtube.com/watch?t=119&v=SOmBhbVz5yQ)

So rename Text to ScoreText.

* [02:02 - 02:04](https://www.youtube.com/watch?t=122&v=SOmBhbVz5yQ)

Then what I'm going to do is to

* [02:04 - 02:06](https://www.youtube.com/watch?t=124&v=SOmBhbVz5yQ)

re-anchor this to the top centre of the screen.

* [02:06 - 02:08](https://www.youtube.com/watch?t=126&v=SOmBhbVz5yQ)

So if you remember we learnt about

* [02:08 - 02:12](https://www.youtube.com/watch?t=128&v=SOmBhbVz5yQ)

rect transform's anchor presets.

* [02:12 - 02:13](https://www.youtube.com/watch?t=132&v=SOmBhbVz5yQ)

And the way that we're going to do that is just

* [02:13 - 02:16](https://www.youtube.com/watch?t=133&v=SOmBhbVz5yQ)

to set the anchor rather than all of it

* [02:16 - 02:19](https://www.youtube.com/watch?t=136&v=SOmBhbVz5yQ)

to the top centre.

* [02:19 - 02:21](https://www.youtube.com/watch?t=139&v=SOmBhbVz5yQ)

So it's this preset here.

* [02:23 - 02:24](https://www.youtube.com/watch?t=143&v=SOmBhbVz5yQ)

We don't need to Alt, we don't need to Shift,

* [02:24 - 02:26](https://www.youtube.com/watch?t=144&v=SOmBhbVz5yQ)

we just need to click that singularly.

* [02:26 - 02:28](https://www.youtube.com/watch?t=146&v=SOmBhbVz5yQ)

And what that does is moves our anchors

* [02:28 - 02:30](https://www.youtube.com/watch?t=148&v=SOmBhbVz5yQ)

to the top, so you can see our

* [02:30 - 02:33](https://www.youtube.com/watch?t=150&v=SOmBhbVz5yQ)

little flower pattern thing is now

* [02:33 - 02:34](https://www.youtube.com/watch?t=153&v=SOmBhbVz5yQ)

sat at the top.

* [02:34 - 02:36](https://www.youtube.com/watch?t=154&v=SOmBhbVz5yQ)

And from there we can then adjust

* [02:36 - 02:37](https://www.youtube.com/watch?t=156&v=SOmBhbVz5yQ)

the positions as appropriate.

* [02:37 - 02:39](https://www.youtube.com/watch?t=157&v=SOmBhbVz5yQ)

You'll now noticed that because I've moved those anchors

* [02:39 - 02:44](https://www.youtube.com/watch?t=159&v=SOmBhbVz5yQ)

the Y position is -220, so the centre of the game view

* [02:44 - 02:48](https://www.youtube.com/watch?t=164&v=SOmBhbVz5yQ)

is -220 pixels or units from the top.

* [02:48 - 02:54](https://www.youtube.com/watch?t=168&v=SOmBhbVz5yQ)

So now I can say the Y position is going to be -55

* [02:54 - 02:57](https://www.youtube.com/watch?t=174&v=SOmBhbVz5yQ)

and I'll make sure that my X is also on 0.

* [02:57 - 03:00](https://www.youtube.com/watch?t=177&v=SOmBhbVz5yQ)

That moves the text in relation to the anchor.

* [03:00 - 03:03](https://www.youtube.com/watch?t=180&v=SOmBhbVz5yQ)

Yeah, so if I set that to 0

* [03:03 - 03:06](https://www.youtube.com/watch?t=183&v=SOmBhbVz5yQ)

you can see that the pivot is 0.5, 0.5, in the centre.

* [03:06 - 03:08](https://www.youtube.com/watch?t=186&v=SOmBhbVz5yQ)

But if I drag this down

* [03:10 - 03:13](https://www.youtube.com/watch?t=190&v=SOmBhbVz5yQ)

you can see that I'm moving it a - value.

* [03:13 - 03:15](https://www.youtube.com/watch?t=193&v=SOmBhbVz5yQ)

So I'll put that around -55.

* [03:17 - 03:19](https://www.youtube.com/watch?t=197&v=SOmBhbVz5yQ)

The next thing we're going to do is setup the width,

* [03:19 - 03:21](https://www.youtube.com/watch?t=199&v=SOmBhbVz5yQ)

I'll set that to 300.

* [03:22 - 03:24](https://www.youtube.com/watch?t=202&v=SOmBhbVz5yQ)

And I'm going to set the heigh to 50.

* [03:25 - 03:27](https://www.youtube.com/watch?t=205&v=SOmBhbVz5yQ)

And I'll set the color to white.

* [03:27 - 03:30](https://www.youtube.com/watch?t=207&v=SOmBhbVz5yQ)

so in the text component you have all the controls

* [03:30 - 03:32](https://www.youtube.com/watch?t=210&v=SOmBhbVz5yQ)

for how the text displays

* [03:32 - 03:34](https://www.youtube.com/watch?t=212&v=SOmBhbVz5yQ)

and I'm going to drag in the color picker

* [03:34 - 03:37](https://www.youtube.com/watch?t=214&v=SOmBhbVz5yQ)

so that my color for the text is white.

* [03:39 - 03:42](https://www.youtube.com/watch?t=219&v=SOmBhbVz5yQ)

Then because we don't want it to just be Arial

* [03:42 - 03:45](https://www.youtube.com/watch?t=222&v=SOmBhbVz5yQ)

and very small we're going to set the font.

* [03:45 - 03:47](https://www.youtube.com/watch?t=225&v=SOmBhbVz5yQ)

And we're going to use the circle select and

* [03:47 - 03:49](https://www.youtube.com/watch?t=227&v=SOmBhbVz5yQ)

choose LuckiestGuy, so that's a font

* [03:49 - 03:51](https://www.youtube.com/watch?t=229&v=SOmBhbVz5yQ)

that we've included in this.

* [03:51 - 03:53](https://www.youtube.com/watch?t=231&v=SOmBhbVz5yQ)

If you're not used to doing any kind of UI

* [03:53 - 03:56](https://www.youtube.com/watch?t=233&v=SOmBhbVz5yQ)

work in Unity, because Unity is authoring another game

* [03:56 - 03:58](https://www.youtube.com/watch?t=236&v=SOmBhbVz5yQ)

or application effectively

* [03:58 - 04:02](https://www.youtube.com/watch?t=238&v=SOmBhbVz5yQ)

you need to include that font within your project.

* [04:02 - 04:06](https://www.youtube.com/watch?t=242&v=SOmBhbVz5yQ)

So we have the truetype file for LuckiestGuy within that.

* [04:07 - 04:11](https://www.youtube.com/watch?t=247&v=SOmBhbVz5yQ)

So we have the licence for it and we have the font itself.

* [04:11 - 04:13](https://www.youtube.com/watch?t=251&v=SOmBhbVz5yQ)

That means that when we export it will have

* [04:13 - 04:15](https://www.youtube.com/watch?t=253&v=SOmBhbVz5yQ)

the font and use it, it doesn't work like

* [04:15 - 04:17](https://www.youtube.com/watch?t=255&v=SOmBhbVz5yQ)

word processors or Photoshop, it won't

* [04:17 - 04:19](https://www.youtube.com/watch?t=257&v=SOmBhbVz5yQ)

just be able to pick from your library, you

* [04:19 - 04:22](https://www.youtube.com/watch?t=259&v=SOmBhbVz5yQ)

have to create a copy of the truetype within your project.

* [04:22 - 04:24](https://www.youtube.com/watch?t=262&v=SOmBhbVz5yQ)

So our score text has that font

* [04:24 - 04:27](https://www.youtube.com/watch?t=264&v=SOmBhbVz5yQ)

and we're going to set the font size to 50.

* [04:27 - 04:30](https://www.youtube.com/watch?t=267&v=SOmBhbVz5yQ)

And we're going to use the alignment under paragraph

* [04:30 - 04:32](https://www.youtube.com/watch?t=270&v=SOmBhbVz5yQ)

to centre and middle.

* [04:33 - 04:36](https://www.youtube.com/watch?t=273&v=SOmBhbVz5yQ)

So centre and middle and font size to 50.

* [04:36 - 04:40](https://www.youtube.com/watch?t=276&v=SOmBhbVz5yQ)

And you should see that we have new text written in there.

* [04:40 - 04:42](https://www.youtube.com/watch?t=280&v=SOmBhbVz5yQ)

Obviously we don't want it to say new text,

* [04:42 - 04:44](https://www.youtube.com/watch?t=282&v=SOmBhbVz5yQ)

we want to see what our actual score will look like.

* [04:44 - 04:46](https://www.youtube.com/watch?t=284&v=SOmBhbVz5yQ)

So in the Text field I'm going to type

* [04:46 - 04:50](https://www.youtube.com/watch?t=286&v=SOmBhbVz5yQ)

in Score: 0.

* [04:50 - 04:52](https://www.youtube.com/watch?t=290&v=SOmBhbVz5yQ)

That's the default that it's going to look like

* [04:52 - 04:54](https://www.youtube.com/watch?t=292&v=SOmBhbVz5yQ)

when we start the game.

* [04:54 - 04:56](https://www.youtube.com/watch?t=294&v=SOmBhbVz5yQ)

Also important to note that we don't have to

* [04:56 - 04:59](https://www.youtube.com/watch?t=296&v=SOmBhbVz5yQ)

set the text to say Score: 0.

* [04:59 - 05:01](https://www.youtube.com/watch?t=299&v=SOmBhbVz5yQ)

Our script is actually going to

* [05:01 - 05:03](https://www.youtube.com/watch?t=301&v=SOmBhbVz5yQ)

write what it is that text should be

* [05:03 - 05:05](https://www.youtube.com/watch?t=303&v=SOmBhbVz5yQ)

however it's really hard to tell what

* [05:05 - 05:07](https://www.youtube.com/watch?t=305&v=SOmBhbVz5yQ)

this is going to look like when we're playing our

* [05:07 - 05:08](https://www.youtube.com/watch?t=307&v=SOmBhbVz5yQ)

game without putting some value in there.

* [05:08 - 05:10](https://www.youtube.com/watch?t=308&v=SOmBhbVz5yQ)

So you might say later 'why did we set that text

* [05:10 - 05:12](https://www.youtube.com/watch?t=310&v=SOmBhbVz5yQ)

when the script is already doing it?'.

* [05:12 - 05:14](https://www.youtube.com/watch?t=312&v=SOmBhbVz5yQ)

The reason is so that we can visually see

* [05:14 - 05:16](https://www.youtube.com/watch?t=314&v=SOmBhbVz5yQ)

'okay, that looks pretty good'

* [05:16 - 05:19](https://www.youtube.com/watch?t=316&v=SOmBhbVz5yQ)

now let's go ahead and apply our scripts and do the rest.

* [05:19 - 05:21](https://www.youtube.com/watch?t=319&v=SOmBhbVz5yQ)

So it's just a placeholder.

* [05:21 - 05:24](https://www.youtube.com/watch?t=321&v=SOmBhbVz5yQ)

Now that we've done this I'm going to save my scene.

* [05:25 - 05:26](https://www.youtube.com/watch?t=325&v=SOmBhbVz5yQ)

So File - Save.

* [05:26 - 05:28](https://www.youtube.com/watch?t=326&v=SOmBhbVz5yQ)

And the next thing I'm going to do is put a

* [05:28 - 05:30](https://www.youtube.com/watch?t=328&v=SOmBhbVz5yQ)

slight drop shadow, so there are some

* [05:30 - 05:32](https://www.youtube.com/watch?t=330&v=SOmBhbVz5yQ)

effects that come with the UI system and

* [05:32 - 05:34](https://www.youtube.com/watch?t=332&v=SOmBhbVz5yQ)

we can add them as a separate component.

* [05:34 - 05:36](https://www.youtube.com/watch?t=334&v=SOmBhbVz5yQ)

We can keep the ScoreText selected,

* [05:36 - 05:39](https://www.youtube.com/watch?t=336&v=SOmBhbVz5yQ)

go to Add Component and just type the word Shadow

* [05:39 - 05:41](https://www.youtube.com/watch?t=339&v=SOmBhbVz5yQ)

and it will immediately find that component

* [05:41 - 05:43](https://www.youtube.com/watch?t=341&v=SOmBhbVz5yQ)

and you can hit Return.

* [05:44 - 05:46](https://www.youtube.com/watch?t=344&v=SOmBhbVz5yQ)

That will just give you a slight drop shadow.

* [05:46 - 05:48](https://www.youtube.com/watch?t=346&v=SOmBhbVz5yQ)

I'm going to make it a bit more obvious

* [05:48 - 05:54](https://www.youtube.com/watch?t=348&v=SOmBhbVz5yQ)

by changing the Effect Distance to 2, -2 in the X and Y axis.

* [05:55 - 05:57](https://www.youtube.com/watch?t=355&v=SOmBhbVz5yQ)

It's also important to keep that

* [05:57 - 05:59](https://www.youtube.com/watch?t=357&v=SOmBhbVz5yQ)

Use Graphic Alpha checked,

* [05:59 - 06:01](https://www.youtube.com/watch?t=359&v=SOmBhbVz5yQ)

otherwise if you change the alpha

* [06:01 - 06:04](https://www.youtube.com/watch?t=361&v=SOmBhbVz5yQ)

of the text the shadow won't also change.

* [06:04 - 06:06](https://www.youtube.com/watch?t=364&v=SOmBhbVz5yQ)

What you'll notice about this is if I change the

* [06:06 - 06:08](https://www.youtube.com/watch?t=366&v=SOmBhbVz5yQ)

alpha of the text itself the shadow

* [06:08 - 06:10](https://www.youtube.com/watch?t=368&v=SOmBhbVz5yQ)

underneath is also fading out.

* [06:10 - 06:12](https://www.youtube.com/watch?t=370&v=SOmBhbVz5yQ)

Whereas if it's not checked

* [06:13 - 06:14](https://www.youtube.com/watch?t=373&v=SOmBhbVz5yQ)

we can fade this and then the shadow

* [06:14 - 06:17](https://www.youtube.com/watch?t=374&v=SOmBhbVz5yQ)

will get left behind which is not desirable.

* [06:19 - 06:21](https://www.youtube.com/watch?t=379&v=SOmBhbVz5yQ)

And then we need something to set

* [06:21 - 06:23](https://www.youtube.com/watch?t=381&v=SOmBhbVz5yQ)

the score, something to be managing

* [06:23 - 06:26](https://www.youtube.com/watch?t=383&v=SOmBhbVz5yQ)

the score, updating the text component's

* [06:26 - 06:28](https://www.youtube.com/watch?t=386&v=SOmBhbVz5yQ)

text value with Score 10, Score 20,

* [06:28 - 06:30](https://www.youtube.com/watch?t=388&v=SOmBhbVz5yQ)

whatever happens in the game.

* [06:30 - 06:32](https://www.youtube.com/watch?t=390&v=SOmBhbVz5yQ)

And the way that we're going to do this is

* [06:32 - 06:34](https://www.youtube.com/watch?t=392&v=SOmBhbVz5yQ)

by adding a Manager script.

* [06:34 - 06:36](https://www.youtube.com/watch?t=394&v=SOmBhbVz5yQ)

So what I'd like you to do is look in

* [06:36 - 06:39](https://www.youtube.com/watch?t=396&v=SOmBhbVz5yQ)

the Scripts - Managers folder

* [06:39 - 06:42](https://www.youtube.com/watch?t=399&v=SOmBhbVz5yQ)

and you will find out Score Manager.

* [06:42 - 06:44](https://www.youtube.com/watch?t=402&v=SOmBhbVz5yQ)

We're going to drag and drop this on to the

* [06:44 - 06:47](https://www.youtube.com/watch?t=404&v=SOmBhbVz5yQ)

ScoreText game object

* [06:49 - 06:51](https://www.youtube.com/watch?t=409&v=SOmBhbVz5yQ)

Then once you've applied it you should see

* [06:51 - 06:53](https://www.youtube.com/watch?t=411&v=SOmBhbVz5yQ)

it at the bottom of the list of components

* [06:54 - 06:55](https://www.youtube.com/watch?t=414&v=SOmBhbVz5yQ)

right underneath the shadow

* [06:55 - 06:57](https://www.youtube.com/watch?t=415&v=SOmBhbVz5yQ)

and we can double click to open that up.

* [06:59 - 07:01](https://www.youtube.com/watch?t=419&v=SOmBhbVz5yQ)

So at the start we again have our public variables.

* [07:01 - 07:04](https://www.youtube.com/watch?t=421&v=SOmBhbVz5yQ)

You'll notice there's a new keyword there

* [07:04 - 07:06](https://www.youtube.com/watch?t=424&v=SOmBhbVz5yQ)

Static.

* [07:06 - 07:10](https://www.youtube.com/watch?t=426&v=SOmBhbVz5yQ)

So a static variable doesn't belong to the instance

* [07:10 - 07:13](https://www.youtube.com/watch?t=430&v=SOmBhbVz5yQ)

of the class it belongs to the class itself.

* [07:13 - 07:14](https://www.youtube.com/watch?t=433&v=SOmBhbVz5yQ)

So let me explain.

* [07:14 - 07:17](https://www.youtube.com/watch?t=434&v=SOmBhbVz5yQ)

Whenever we're dragging on EnemyHealth

* [07:17 - 07:19](https://www.youtube.com/watch?t=437&v=SOmBhbVz5yQ)

or PlayerHealth or PlayerMovement on to an object

* [07:19 - 07:22](https://www.youtube.com/watch?t=439&v=SOmBhbVz5yQ)

we're creating an instance of that class

* [07:22 - 07:24](https://www.youtube.com/watch?t=442&v=SOmBhbVz5yQ)

and applying it to the game object,

* [07:24 - 07:26](https://www.youtube.com/watch?t=444&v=SOmBhbVz5yQ)

so they are all instances of a class.

* [07:27 - 07:29](https://www.youtube.com/watch?t=447&v=SOmBhbVz5yQ)

And so all of the variables,

* [07:29 - 07:31](https://www.youtube.com/watch?t=449&v=SOmBhbVz5yQ)

they're instance variables,

* [07:31 - 07:35](https://www.youtube.com/watch?t=451&v=SOmBhbVz5yQ)

each enemy has it's own health,

* [07:35 - 07:38](https://www.youtube.com/watch?t=455&v=SOmBhbVz5yQ)

each player has it's own speed, etcetera.

* [07:38 - 07:42](https://www.youtube.com/watch?t=458&v=SOmBhbVz5yQ)

Static variables do not belong to an instance,

* [07:42 - 07:44](https://www.youtube.com/watch?t=462&v=SOmBhbVz5yQ)

they belong to the class itself.

* [07:44 - 07:46](https://www.youtube.com/watch?t=464&v=SOmBhbVz5yQ)

So what that means is,

* [07:46 - 07:49](https://www.youtube.com/watch?t=466&v=SOmBhbVz5yQ)

in order to reference the score there

* [07:50 - 07:54](https://www.youtube.com/watch?t=470&v=SOmBhbVz5yQ)

we don't need to go ScoreManager variable

* [07:54 - 07:59](https://www.youtube.com/watch?t=474&v=SOmBhbVz5yQ)

GetComponent ScoreManager then use it, we just say

* [07:59 - 08:03](https://www.youtube.com/watch?t=479&v=SOmBhbVz5yQ)

ScoreManager type . score.

* [08:03 - 08:06](https://www.youtube.com/watch?t=483&v=SOmBhbVz5yQ)

So we don't need to create a variable to use it

* [08:06 - 08:09](https://www.youtube.com/watch?t=486&v=SOmBhbVz5yQ)

we're just going to use it through the type itself.

* [08:09 - 08:12](https://www.youtube.com/watch?t=489&v=SOmBhbVz5yQ)

So it only effectively exists in one place

* [08:12 - 08:14](https://www.youtube.com/watch?t=492&v=SOmBhbVz5yQ)

we're not going to address a bunch of instances where

* [08:14 - 08:17](https://www.youtube.com/watch?t=494&v=SOmBhbVz5yQ)

this exists, we're changing it in 1 place.

* [08:17 - 08:19](https://www.youtube.com/watch?t=497&v=SOmBhbVz5yQ)

We could still have multiple

* [08:19 - 08:21](https://www.youtube.com/watch?t=499&v=SOmBhbVz5yQ)

instance of ScoreManager,

* [08:21 - 08:23](https://www.youtube.com/watch?t=501&v=SOmBhbVz5yQ)

we could drag multiple ones on to

* [08:23 - 08:27](https://www.youtube.com/watch?t=503&v=SOmBhbVz5yQ)

a game object, on to different game objects, doesn't matter.

* [08:27 - 08:30](https://www.youtube.com/watch?t=507&v=SOmBhbVz5yQ)

We're not going to, because that would break everything.

* [08:30 - 08:34](https://www.youtube.com/watch?t=510&v=SOmBhbVz5yQ)

But if we did all of them would share the same score.

* [08:34 - 08:36](https://www.youtube.com/watch?t=514&v=SOmBhbVz5yQ)

because it belongs to the type

* [08:36 - 08:38](https://www.youtube.com/watch?t=516&v=SOmBhbVz5yQ)

not to the instance.

* [08:38 - 08:42](https://www.youtube.com/watch?t=518&v=SOmBhbVz5yQ)

So the next thing is we need a reference to our Text component.

* [08:42 - 08:43](https://www.youtube.com/watch?t=522&v=SOmBhbVz5yQ)

In awake we're going to setup that reference

* [08:43 - 08:45](https://www.youtube.com/watch?t=523&v=SOmBhbVz5yQ)

to the text component.

* [08:45 - 08:47](https://www.youtube.com/watch?t=525&v=SOmBhbVz5yQ)

Then we need to reset the score

* [08:47 - 08:49](https://www.youtube.com/watch?t=527&v=SOmBhbVz5yQ)

because if we die we want

* [08:49 - 08:51](https://www.youtube.com/watch?t=529&v=SOmBhbVz5yQ)

the game to reset, so,

* [08:51 - 08:53](https://www.youtube.com/watch?t=531&v=SOmBhbVz5yQ)

we need to set the score back to 0.

* [08:53 - 08:55](https://www.youtube.com/watch?t=533&v=SOmBhbVz5yQ)

And in our update function

* [08:55 - 08:59](https://www.youtube.com/watch?t=535&v=SOmBhbVz5yQ)

what we're doing there, the text.text is

* [08:59 - 09:01](https://www.youtube.com/watch?t=539&v=SOmBhbVz5yQ)

we're changing the text property

* [09:01 - 09:03](https://www.youtube.com/watch?t=541&v=SOmBhbVz5yQ)

of the text component.

* [09:03 - 09:05](https://www.youtube.com/watch?t=543&v=SOmBhbVz5yQ)

Okay, so the text component that we have

* [09:05 - 09:10](https://www.youtube.com/watch?t=545&v=SOmBhbVz5yQ)

that string that we said Score: 0,

* [09:10 - 09:13](https://www.youtube.com/watch?t=550&v=SOmBhbVz5yQ)

that was the Score text,

* [09:13 - 09:16](https://www.youtube.com/watch?t=553&v=SOmBhbVz5yQ)

that was the text property of the component.

* [09:16 - 09:19](https://www.youtube.com/watch?t=556&v=SOmBhbVz5yQ)

So what we're doing is we're setting that

* [09:19 - 09:21](https://www.youtube.com/watch?t=559&v=SOmBhbVz5yQ)

to a completely new string, we're not changing that,

* [09:21 - 09:24](https://www.youtube.com/watch?t=561&v=SOmBhbVz5yQ)

we're just setting it completely afresh.

* [09:24 - 09:27](https://www.youtube.com/watch?t=564&v=SOmBhbVz5yQ)

We're changing it to Score:

* [09:27 - 09:29](https://www.youtube.com/watch?t=567&v=SOmBhbVz5yQ)

and then that number will be the score.

* [09:30 - 09:32](https://www.youtube.com/watch?t=570&v=SOmBhbVz5yQ)

So very simply that's our ScoreManager and

* [09:32 - 09:34](https://www.youtube.com/watch?t=572&v=SOmBhbVz5yQ)

if you happen to save it it'll ask you to convert

* [09:34 - 09:36](https://www.youtube.com/watch?t=574&v=SOmBhbVz5yQ)

the line endings, it's no big deal.

* [09:37 - 09:40](https://www.youtube.com/watch?t=577&v=SOmBhbVz5yQ)

Okay, we'll need to continue scoring points

* [09:40 - 09:42](https://www.youtube.com/watch?t=580&v=SOmBhbVz5yQ)

and I'm going to select my

* [09:42 - 09:44](https://www.youtube.com/watch?t=582&v=SOmBhbVz5yQ)

Zombunny in the hierarchy

* [09:44 - 09:48](https://www.youtube.com/watch?t=584&v=SOmBhbVz5yQ)

and locate the EnemyHealth script.

* [09:48 - 09:51](https://www.youtube.com/watch?t=588&v=SOmBhbVz5yQ)

And we're going to open the EnemyHealth script.

* [09:52 - 09:55](https://www.youtube.com/watch?t=592&v=SOmBhbVz5yQ)

and have a look down at the very bottom

* [09:55 - 09:58](https://www.youtube.com/watch?t=595&v=SOmBhbVz5yQ)

at the StartSinging function.

* [09:58 - 10:01](https://www.youtube.com/watch?t=598&v=SOmBhbVz5yQ)

James mentioned the public static

* [10:01 - 10:03](https://www.youtube.com/watch?t=601&v=SOmBhbVz5yQ)

integer score earlier,

* [10:03 - 10:05](https://www.youtube.com/watch?t=603&v=SOmBhbVz5yQ)

he promised you very kindly that you could

* [10:05 - 10:07](https://www.youtube.com/watch?t=605&v=SOmBhbVz5yQ)

indeed say the name of

* [10:07 - 10:11](https://www.youtube.com/watch?t=607&v=SOmBhbVz5yQ)

the class, ScoreManager.score,

* [10:11 - 10:13](https://www.youtube.com/watch?t=611&v=SOmBhbVz5yQ)

so without saying GetComponent

* [10:13 - 10:16](https://www.youtube.com/watch?t=613&v=SOmBhbVz5yQ)

or create an instance of the script, assign to this part of the script

* [10:16 - 10:20](https://www.youtube.com/watch?t=616&v=SOmBhbVz5yQ)

we can very simply just say ScoreManager.score.

* [10:20 - 10:22](https://www.youtube.com/watch?t=620&v=SOmBhbVz5yQ)

So we're going to re-enable that by deleting

* [10:22 - 10:24](https://www.youtube.com/watch?t=622&v=SOmBhbVz5yQ)

the 2 // comments.

* [10:24 - 10:27](https://www.youtube.com/watch?t=624&v=SOmBhbVz5yQ)

And what we're doing there is adding to it

* [10:27 - 10:30](https://www.youtube.com/watch?t=627&v=SOmBhbVz5yQ)

the value of ScoreValue.

* [10:30 - 10:36](https://www.youtube.com/watch?t=630&v=SOmBhbVz5yQ)

So scoreValue within this particular script is

* [10:36 - 10:39](https://www.youtube.com/watch?t=636&v=SOmBhbVz5yQ)

a public variable that we can change.

* [10:39 - 10:44](https://www.youtube.com/watch?t=639&v=SOmBhbVz5yQ)

This enemy has a value of 10 that when you kill it you get 10 points.

* [10:44 - 10:46](https://www.youtube.com/watch?t=644&v=SOmBhbVz5yQ)

This way we can apply this

* [10:46 - 10:48](https://www.youtube.com/watch?t=646&v=SOmBhbVz5yQ)

EnemyHealth script to different enemies

* [10:48 - 10:50](https://www.youtube.com/watch?t=648&v=SOmBhbVz5yQ)

and have different score values.

* [10:50 - 10:52](https://www.youtube.com/watch?t=650&v=SOmBhbVz5yQ)

So if you wanted to make the

* [10:52 - 10:54](https://www.youtube.com/watch?t=652&v=SOmBhbVz5yQ)

killing the elephant worth a lot then you could

* [10:54 - 10:56](https://www.youtube.com/watch?t=654&v=SOmBhbVz5yQ)

change that value, you don't need to go in to the

* [10:56 - 10:58](https://www.youtube.com/watch?t=656&v=SOmBhbVz5yQ)

script and change it, it's a public value

* [10:58 - 11:00](https://www.youtube.com/watch?t=658&v=SOmBhbVz5yQ)

so it appears in the inspector.

* [11:00 - 11:03](https://www.youtube.com/watch?t=660&v=SOmBhbVz5yQ)

I just want to make a quick point about static variables.

* [11:03 - 11:07](https://www.youtube.com/watch?t=663&v=SOmBhbVz5yQ)

So you know it's a lot easier to do it with static there,

* [11:07 - 11:10](https://www.youtube.com/watch?t=667&v=SOmBhbVz5yQ)

we didn't have to create an instance variable,

* [11:10 - 11:12](https://www.youtube.com/watch?t=670&v=SOmBhbVz5yQ)

we didn't have to assign it in awake

* [11:12 - 11:14](https://www.youtube.com/watch?t=672&v=SOmBhbVz5yQ)

and then use it, we just used it just like that.

* [11:14 - 11:17](https://www.youtube.com/watch?t=674&v=SOmBhbVz5yQ)

So why don't we use it for everything like that?

* [11:17 - 11:18](https://www.youtube.com/watch?t=677&v=SOmBhbVz5yQ)

That would be so much easier?

* [11:18 - 11:22](https://www.youtube.com/watch?t=678&v=SOmBhbVz5yQ)

It's because we have multiple enemies

* [11:22 - 11:24](https://www.youtube.com/watch?t=682&v=SOmBhbVz5yQ)

and if we wanted multiple players then

* [11:24 - 11:25](https://www.youtube.com/watch?t=684&v=SOmBhbVz5yQ)

we'd have more of those as well.

* [11:25 - 11:27](https://www.youtube.com/watch?t=685&v=SOmBhbVz5yQ)

So if we wanted to change the health

* [11:27 - 11:30](https://www.youtube.com/watch?t=687&v=SOmBhbVz5yQ)

of one player all of the player's health would change.

* [11:30 - 11:32](https://www.youtube.com/watch?t=690&v=SOmBhbVz5yQ)

So we can't do it most of the time.

* [11:32 - 11:34](https://www.youtube.com/watch?t=692&v=SOmBhbVz5yQ)

It's just very specific circumstances

* [11:34 - 11:36](https://www.youtube.com/watch?t=694&v=SOmBhbVz5yQ)

where you'd only have one score

* [11:36 - 11:38](https://www.youtube.com/watch?t=696&v=SOmBhbVz5yQ)

so we can make that static

* [11:38 - 11:40](https://www.youtube.com/watch?t=698&v=SOmBhbVz5yQ)

to make it easier for ourselves.

* [11:40 - 11:42](https://www.youtube.com/watch?t=700&v=SOmBhbVz5yQ)

So we're going to save this, it's going to ask you

* [11:42 - 11:45](https://www.youtube.com/watch?t=702&v=SOmBhbVz5yQ)

to convert line endings, just choose Convert.

* [11:45 - 11:47](https://www.youtube.com/watch?t=705&v=SOmBhbVz5yQ)

This project was made on PC and then

* [11:47 - 11:49](https://www.youtube.com/watch?t=707&v=SOmBhbVz5yQ)

moved between PC and Mac so the files

* [11:49 - 11:51](https://www.youtube.com/watch?t=709&v=SOmBhbVz5yQ)

get confused but it's no big deal.

* [11:52 - 11:54](https://www.youtube.com/watch?t=712&v=SOmBhbVz5yQ)

So we should now go ahead and try it out.

* [11:54 - 11:56](https://www.youtube.com/watch?t=714&v=SOmBhbVz5yQ)

So if you save your scene and press play

* [11:56 - 11:58](https://www.youtube.com/watch?t=716&v=SOmBhbVz5yQ)

at the top of the interface.

* [12:01 - 12:05](https://www.youtube.com/watch?t=721&v=SOmBhbVz5yQ)

There we go, 10 points for a Zombunny.

* [12:05 - 12:09](https://www.youtube.com/watch?t=725&v=SOmBhbVz5yQ)

A very important point to make right now about prefabs

* [12:09 - 12:12](https://www.youtube.com/watch?t=729&v=SOmBhbVz5yQ)

is that they are incredibly useful when you want to

* [12:12 - 12:14](https://www.youtube.com/watch?t=732&v=SOmBhbVz5yQ)

spawn more than one object.

* [12:14 - 12:16](https://www.youtube.com/watch?t=734&v=SOmBhbVz5yQ)

So some people might use if for rockets in a game

* [12:16 - 12:18](https://www.youtube.com/watch?t=736&v=SOmBhbVz5yQ)

and you might use it for enemy spawning in a game.

* [12:18 - 12:20](https://www.youtube.com/watch?t=738&v=SOmBhbVz5yQ)

You can use it for really anything you want to

* [12:21 - 12:23](https://www.youtube.com/watch?t=741&v=SOmBhbVz5yQ)

But we want to use that for our enemies,

* [12:23 - 12:25](https://www.youtube.com/watch?t=743&v=SOmBhbVz5yQ)

there's going to be 3 types of enemy,

* [12:25 - 12:28](https://www.youtube.com/watch?t=745&v=SOmBhbVz5yQ)

and you guys have gone and created that first enemy.

* [12:28 - 12:30](https://www.youtube.com/watch?t=748&v=SOmBhbVz5yQ)

What we don't want is just the enemy to be

* [12:30 - 12:32](https://www.youtube.com/watch?t=750&v=SOmBhbVz5yQ)

sat next to the player when the game starts.

* [12:32 - 12:36](https://www.youtube.com/watch?t=752&v=SOmBhbVz5yQ)

So what we need to do is to save him as a prefab.

* [12:36 - 12:38](https://www.youtube.com/watch?t=756&v=SOmBhbVz5yQ)

So everybody make sure you've stopped play,

* [12:38 - 12:42](https://www.youtube.com/watch?t=758&v=SOmBhbVz5yQ)

so play is no longer on, it should be black at the top.

* [12:42 - 12:44](https://www.youtube.com/watch?t=762&v=SOmBhbVz5yQ)

No more blue buttons.

* [12:44 - 12:45](https://www.youtube.com/watch?t=764&v=SOmBhbVz5yQ)

What we're going to do is to select our

* [12:45 - 12:47](https://www.youtube.com/watch?t=765&v=SOmBhbVz5yQ)

Prefabs folder in the project

* [12:47 - 12:50](https://www.youtube.com/watch?t=767&v=SOmBhbVz5yQ)

and then grab the Zombunny in the hierarchy

* [12:50 - 12:53](https://www.youtube.com/watch?t=770&v=SOmBhbVz5yQ)

and drag and drop it in to the project panel

* [12:53 - 12:55](https://www.youtube.com/watch?t=773&v=SOmBhbVz5yQ)

either in the empty space or drop it on

* [12:55 - 12:56](https://www.youtube.com/watch?t=775&v=SOmBhbVz5yQ)

to the Prefabs folder.

* [12:57 - 12:59](https://www.youtube.com/watch?t=777&v=SOmBhbVz5yQ)

Both of those will create the same effect,

* [12:59 - 13:01](https://www.youtube.com/watch?t=779&v=SOmBhbVz5yQ)

you will get a Zombunny prefab,

* [13:01 - 13:03](https://www.youtube.com/watch?t=781&v=SOmBhbVz5yQ)

which looks like this.

* [13:05 - 13:07](https://www.youtube.com/watch?t=785&v=SOmBhbVz5yQ)

And you will have all of the same settings

* [13:07 - 13:09](https://www.youtube.com/watch?t=787&v=SOmBhbVz5yQ)

that you had on the version that's in the scene.

* [13:10 - 13:12](https://www.youtube.com/watch?t=790&v=SOmBhbVz5yQ)

So that version in the scene now belongs

* [13:12 - 13:14](https://www.youtube.com/watch?t=792&v=SOmBhbVz5yQ)

to that prefab parent.

* [13:14 - 13:16](https://www.youtube.com/watch?t=794&v=SOmBhbVz5yQ)

And even if we delete the version in

* [13:16 - 13:18](https://www.youtube.com/watch?t=796&v=SOmBhbVz5yQ)

the scene, in the hierarchy,

* [13:18 - 13:20](https://www.youtube.com/watch?t=798&v=SOmBhbVz5yQ)

then the version in the project is saved,

* [13:20 - 13:22](https://www.youtube.com/watch?t=800&v=SOmBhbVz5yQ)

and that's very crucial.

* [13:23 - 13:25](https://www.youtube.com/watch?t=803&v=SOmBhbVz5yQ)

Everybody check that you've got your Zombunny

* [13:25 - 13:27](https://www.youtube.com/watch?t=805&v=SOmBhbVz5yQ)

in the project, it's very important.

* [13:27 - 13:30](https://www.youtube.com/watch?t=807&v=SOmBhbVz5yQ)

Then in the hierarchy we want to get rid of it,

* [13:30 - 13:31](https://www.youtube.com/watch?t=810&v=SOmBhbVz5yQ)

so I'm going to select it there and

* [13:31 - 13:33](https://www.youtube.com/watch?t=811&v=SOmBhbVz5yQ)

on Mac Command Backspace,

* [13:33 - 13:35](https://www.youtube.com/watch?t=813&v=SOmBhbVz5yQ)

on PC just the delete key.

* [13:35 - 13:37](https://www.youtube.com/watch?t=815&v=SOmBhbVz5yQ)

Remove it from the scene.

* [13:37 - 13:40](https://www.youtube.com/watch?t=817&v=SOmBhbVz5yQ)

And then save your scene.

* [13:40 - 13:42](https://www.youtube.com/watch?t=820&v=SOmBhbVz5yQ)

Switch off 2D mode and double click the

* [13:42 - 13:44](https://www.youtube.com/watch?t=822&v=SOmBhbVz5yQ)

player to zoom back in to the action

* [13:44 - 13:46](https://www.youtube.com/watch?t=824&v=SOmBhbVz5yQ)

so you can see the player.

* [13:47 - 13:50](https://www.youtube.com/watch?t=827&v=SOmBhbVz5yQ)

Okay, so that is the end of phase 8.

# Phase 9

* As I've just said we've just
* [00:01 - 00:03](https://www.youtube.com/watch?t=1&v=T5A58WTd3XU)

created one enemy.

* [00:03 - 00:05](https://www.youtube.com/watch?t=3&v=T5A58WTd3XU)

What we didn't want to force you guys to do

* [00:05 - 00:07](https://www.youtube.com/watch?t=5&v=T5A58WTd3XU)

was to repeat those steps again to make

* [00:07 - 00:09](https://www.youtube.com/watch?t=7&v=T5A58WTd3XU)

a fairly identical enemy.

* [00:09 - 00:11](https://www.youtube.com/watch?t=9&v=T5A58WTd3XU)

Instead what we want to do is show you how

* [00:11 - 00:13](https://www.youtube.com/watch?t=11&v=T5A58WTd3XU)

you can use some of the things that you've just

* [00:13 - 00:15](https://www.youtube.com/watch?t=13&v=T5A58WTd3XU)

done such as the animator controller,

* [00:15 - 00:17](https://www.youtube.com/watch?t=15&v=T5A58WTd3XU)

for example, and reuse that

* [00:17 - 00:19](https://www.youtube.com/watch?t=17&v=T5A58WTd3XU)

on a new enemy.

* [00:19 - 00:22](https://www.youtube.com/watch?t=19&v=T5A58WTd3XU)

So what we did was we have very kindly

* [00:22 - 00:25](https://www.youtube.com/watch?t=22&v=T5A58WTd3XU)

gone and created for you the Zombear.

* [00:25 - 00:27](https://www.youtube.com/watch?t=25&v=T5A58WTd3XU)

A new enemy who is otherwise

* [00:27 - 00:29](https://www.youtube.com/watch?t=27&v=T5A58WTd3XU)

pretty identical to the Zombunny.

* [00:31 - 00:32](https://www.youtube.com/watch?t=31&v=T5A58WTd3XU)

He looks like this.

* [00:33 - 00:35](https://www.youtube.com/watch?t=33&v=T5A58WTd3XU)

What we're going to do is to

* [00:35 - 00:37](https://www.youtube.com/watch?t=35&v=T5A58WTd3XU)

assign certain things to that Zombear

* [00:37 - 00:39](https://www.youtube.com/watch?t=37&v=T5A58WTd3XU)

to make him work very much

* [00:39 - 00:41](https://www.youtube.com/watch?t=39&v=T5A58WTd3XU)

in the same way as the Zombunny.

* [00:41 - 00:44](https://www.youtube.com/watch?t=41&v=T5A58WTd3XU)

So the great thing about the Unity animator system

* [00:44 - 00:46](https://www.youtube.com/watch?t=44&v=T5A58WTd3XU)

is that it's reusable,

* [00:46 - 00:48](https://www.youtube.com/watch?t=46&v=T5A58WTd3XU)

so these are states that have animation

* [00:48 - 00:50](https://www.youtube.com/watch?t=48&v=T5A58WTd3XU)

clips assigned to them.

* [00:50 - 00:52](https://www.youtube.com/watch?t=50&v=T5A58WTd3XU)

So when we look at the animator

* [00:52 - 00:54](https://www.youtube.com/watch?t=52&v=T5A58WTd3XU)

for our EnemyAC, there it is,

* [00:54 - 00:56](https://www.youtube.com/watch?t=54&v=T5A58WTd3XU)

we have a bunch of different states.

* [00:56 - 00:59](https://www.youtube.com/watch?t=56&v=T5A58WTd3XU)

We have Move, Idle and Death.

* [00:59 - 01:01](https://www.youtube.com/watch?t=59&v=T5A58WTd3XU)

Now these states aren't the clips themselves,

* [01:01 - 01:03](https://www.youtube.com/watch?t=61&v=T5A58WTd3XU)

they are holders for clips.

* [01:03 - 01:07](https://www.youtube.com/watch?t=63&v=T5A58WTd3XU)

So those animations are setup in there

* [01:07 - 01:09](https://www.youtube.com/watch?t=67&v=T5A58WTd3XU)

and if you've got something that has a similar

* [01:09 - 01:12](https://www.youtube.com/watch?t=69&v=T5A58WTd3XU)

skeleton, like our Zombunny and Zombear do,

* [01:12 - 01:14](https://www.youtube.com/watch?t=72&v=T5A58WTd3XU)

we can reuse the state machine

* [01:14 - 01:16](https://www.youtube.com/watch?t=74&v=T5A58WTd3XU)

and reuse both the script

* [01:16 - 01:20](https://www.youtube.com/watch?t=76&v=T5A58WTd3XU)

that talks to these parameters and the parameters themselves.

* [01:20 - 01:23](https://www.youtube.com/watch?t=80&v=T5A58WTd3XU)

In order to drive a different enemy.

* [01:23 - 01:26](https://www.youtube.com/watch?t=83&v=T5A58WTd3XU)

So in the prefabs, with my Zombear selected,

* [01:26 - 01:28](https://www.youtube.com/watch?t=86&v=T5A58WTd3XU)

what I'm going to do is click on

* [01:28 - 01:30](https://www.youtube.com/watch?t=88&v=T5A58WTd3XU)

my animation folder

* [01:30 - 01:34](https://www.youtube.com/watch?t=90&v=T5A58WTd3XU)

and then drag and drop EnemyAC

* [01:34 - 01:37](https://www.youtube.com/watch?t=94&v=T5A58WTd3XU)

on to the animator controller property.

* [01:40 - 01:41](https://www.youtube.com/watch?t=100&v=T5A58WTd3XU)

So I'm dropping it on to this.

* [01:41 - 01:43](https://www.youtube.com/watch?t=101&v=T5A58WTd3XU)

Currently it says None.

* [01:43 - 01:45](https://www.youtube.com/watch?t=103&v=T5A58WTd3XU)

So we made EnemyAC earlier

* [01:45 - 01:48](https://www.youtube.com/watch?t=105&v=T5A58WTd3XU)

for the other character, we're reusing it here

* [01:48 - 01:50](https://www.youtube.com/watch?t=108&v=T5A58WTd3XU)

so it will work in exactly the same way.

* [01:50 - 01:52](https://www.youtube.com/watch?t=110&v=T5A58WTd3XU)

You will also notice it's got the same

* [01:52 - 01:55](https://www.youtube.com/watch?t=112&v=T5A58WTd3XU)

scripts applied to it, it's got EnemyAttack,

* [01:55 - 01:56](https://www.youtube.com/watch?t=115&v=T5A58WTd3XU)

Health and Movement,

* [01:56 - 02:00](https://www.youtube.com/watch?t=116&v=T5A58WTd3XU)

which are looking for this animator controller and looking for

* [02:00 - 02:02](https://www.youtube.com/watch?t=120&v=T5A58WTd3XU)

the parameters that we setup.

* [02:02 - 02:04](https://www.youtube.com/watch?t=122&v=T5A58WTd3XU)

So that's just going to work right off the bat.

* [02:06 - 02:08](https://www.youtube.com/watch?t=126&v=T5A58WTd3XU)

Then the third enemy is our Hellephant.

* [02:09 - 02:12](https://www.youtube.com/watch?t=129&v=T5A58WTd3XU)

He rather shockingly looks like this.

* [02:14 - 02:16](https://www.youtube.com/watch?t=134&v=T5A58WTd3XU)

The difference with this guy is that he's not

* [02:16 - 02:18](https://www.youtube.com/watch?t=136&v=T5A58WTd3XU)

the same type of enemy.

* [02:18 - 02:20](https://www.youtube.com/watch?t=138&v=T5A58WTd3XU)

He's a different shape and his rig's different

* [02:20 - 02:22](https://www.youtube.com/watch?t=140&v=T5A58WTd3XU)

and his animations are different.

* [02:22 - 02:25](https://www.youtube.com/watch?t=142&v=T5A58WTd3XU)

However he does the same things.

* [02:25 - 02:28](https://www.youtube.com/watch?t=145&v=T5A58WTd3XU)

He has Move, he Idles and he has Death.

* [02:28 - 02:30](https://www.youtube.com/watch?t=148&v=T5A58WTd3XU)

But they're not the same animation clips.

* [02:31 - 02:33](https://www.youtube.com/watch?t=151&v=T5A58WTd3XU)

So one way to approach this would be to

* [02:33 - 02:35](https://www.youtube.com/watch?t=153&v=T5A58WTd3XU)

make a brand new animator controller.

* [02:36 - 02:37](https://www.youtube.com/watch?t=156&v=T5A58WTd3XU)

Make the transitions.

* [02:37 - 02:39](https://www.youtube.com/watch?t=157&v=T5A58WTd3XU)

Make new parameters for it

* [02:39 - 02:41](https://www.youtube.com/watch?t=159&v=T5A58WTd3XU)

and set it up in a fairly similar way.

* [02:41 - 02:43](https://www.youtube.com/watch?t=161&v=T5A58WTd3XU)

Also in the operating system

* [02:43 - 02:45](https://www.youtube.com/watch?t=163&v=T5A58WTd3XU)

you've got Copy/Paste to create a copy of it.

* [02:45 - 02:49](https://www.youtube.com/watch?t=165&v=T5A58WTd3XU)

Again it's redundant and completely unnecessary.

* [02:49 - 02:51](https://www.youtube.com/watch?t=169&v=T5A58WTd3XU)

Yeah, so, we don't want to do this.

* [02:51 - 02:54](https://www.youtube.com/watch?t=171&v=T5A58WTd3XU)

So there's the new feature, fairly recently added called

* [02:54 - 02:56](https://www.youtube.com/watch?t=174&v=T5A58WTd3XU)

Animator Override Controllers.

* [02:56 - 02:58](https://www.youtube.com/watch?t=176&v=T5A58WTd3XU)

What this means is you can create

* [02:58 - 03:01](https://www.youtube.com/watch?t=178&v=T5A58WTd3XU)

lots of different classes of

* [03:01 - 03:03](https://www.youtube.com/watch?t=181&v=T5A58WTd3XU)

characters in your game.

* [03:03 - 03:05](https://www.youtube.com/watch?t=183&v=T5A58WTd3XU)

And if, for example, they all share

* [03:05 - 03:07](https://www.youtube.com/watch?t=185&v=T5A58WTd3XU)

a similar skeleton you can have

* [03:07 - 03:09](https://www.youtube.com/watch?t=187&v=T5A58WTd3XU)

the same state machine driving all of them

* [03:09 - 03:12](https://www.youtube.com/watch?t=189&v=T5A58WTd3XU)

but just change the animation clip that it uses.

* [03:13 - 03:15](https://www.youtube.com/watch?t=193&v=T5A58WTd3XU)

So we're going to create that asset.

* [03:15 - 03:17](https://www.youtube.com/watch?t=195&v=T5A58WTd3XU)

So if you click on the animation

* [03:17 - 03:19](https://www.youtube.com/watch?t=197&v=T5A58WTd3XU)

folder in your project.

* [03:19 - 03:21](https://www.youtube.com/watch?t=199&v=T5A58WTd3XU)

Then go to Create

* [03:21 - 03:26](https://www.youtube.com/watch?t=201&v=T5A58WTd3XU)

you will see something called Animator Override Controller.

* [03:26 - 03:28](https://www.youtube.com/watch?t=206&v=T5A58WTd3XU)

Click on this and we're going to call this

* [03:28 - 03:32](https://www.youtube.com/watch?t=208&v=T5A58WTd3XU)

HellephantAOC,

* [03:32 - 03:34](https://www.youtube.com/watch?t=212&v=T5A58WTd3XU)

Animator Override Controller.

* [03:35 - 03:37](https://www.youtube.com/watch?t=215&v=T5A58WTd3XU)

You'll notice that the icon is a little different

* [03:37 - 03:40](https://www.youtube.com/watch?t=217&v=T5A58WTd3XU)

from the others, the others have three squares and a

* [03:40 - 03:42](https://www.youtube.com/watch?t=220&v=T5A58WTd3XU)

play icon, this has a + icon.

* [03:42 - 03:44](https://www.youtube.com/watch?t=222&v=T5A58WTd3XU)

Because it's effectively taking the same

* [03:44 - 03:46](https://www.youtube.com/watch?t=224&v=T5A58WTd3XU)

state machine and adding

* [03:46 - 03:48](https://www.youtube.com/watch?t=226&v=T5A58WTd3XU)

over the top the ability to use different

* [03:48 - 03:50](https://www.youtube.com/watch?t=228&v=T5A58WTd3XU)

clips within the states.

* [03:50 - 03:53](https://www.youtube.com/watch?t=230&v=T5A58WTd3XU)

So one example for this could be that you have

* [03:53 - 03:56](https://www.youtube.com/watch?t=233&v=T5A58WTd3XU)

a character that runs a certain way and

* [03:56 - 03:58](https://www.youtube.com/watch?t=236&v=T5A58WTd3XU)

jumps a certain way but when he shoots

* [03:58 - 04:00](https://www.youtube.com/watch?t=238&v=T5A58WTd3XU)

or when he attacks it's totally different.

* [04:00 - 04:04](https://www.youtube.com/watch?t=240&v=T5A58WTd3XU)

so you use the same animator controller to drive

* [04:04 - 04:06](https://www.youtube.com/watch?t=244&v=T5A58WTd3XU)

the running and the jumping etcetera

* [04:06 - 04:09](https://www.youtube.com/watch?t=246&v=T5A58WTd3XU)

but then you just override the attack.

* [04:09 - 04:11](https://www.youtube.com/watch?t=249&v=T5A58WTd3XU)

So we're going to override all three

* [04:11 - 04:13](https://www.youtube.com/watch?t=251&v=T5A58WTd3XU)

simply because we're reusing the same

* [04:13 - 04:15](https://www.youtube.com/watch?t=253&v=T5A58WTd3XU)

parameters and the same transitions.

* [04:16 - 04:18](https://www.youtube.com/watch?t=256&v=T5A58WTd3XU)

The way that we use this is that

* [04:18 - 04:20](https://www.youtube.com/watch?t=258&v=T5A58WTd3XU)

we select the asset in the project panel like

* [04:20 - 04:22](https://www.youtube.com/watch?t=260&v=T5A58WTd3XU)

it is now and we give it a

* [04:22 - 04:26](https://www.youtube.com/watch?t=262&v=T5A58WTd3XU)

controller to relate to, so we drag and drop EnemyAC

* [04:26 - 04:29](https://www.youtube.com/watch?t=266&v=T5A58WTd3XU)

on to the Controller slot at the top of the inspector.

* [04:30 - 04:32](https://www.youtube.com/watch?t=270&v=T5A58WTd3XU)

So what this does is it goes through and says

* [04:32 - 04:35](https://www.youtube.com/watch?t=272&v=T5A58WTd3XU)

'what states does this animator controller have?'

* [04:35 - 04:38](https://www.youtube.com/watch?t=275&v=T5A58WTd3XU)

and it's found Move, Idle and Death.

* [04:39 - 04:41](https://www.youtube.com/watch?t=279&v=T5A58WTd3XU)

Then we have the ability to fill in

* [04:41 - 04:43](https://www.youtube.com/watch?t=281&v=T5A58WTd3XU)

new animation clips to replace

* [04:43 - 04:46](https://www.youtube.com/watch?t=283&v=T5A58WTd3XU)

the ones that are in those existing states

* [04:48 - 04:50](https://www.youtube.com/watch?t=288&v=T5A58WTd3XU)

So the animations, just like before,

* [04:50 - 04:52](https://www.youtube.com/watch?t=290&v=T5A58WTd3XU)

are within the character folder.

* [04:52 - 04:54](https://www.youtube.com/watch?t=292&v=T5A58WTd3XU)

Just a word of warning here, what we don't want

* [04:54 - 04:56](https://www.youtube.com/watch?t=294&v=T5A58WTd3XU)

to do is click off Hellephant.

* [04:57 - 04:59](https://www.youtube.com/watch?t=297&v=T5A58WTd3XU)

So I'm going to click on Characters

* [04:59 - 05:01](https://www.youtube.com/watch?t=299&v=T5A58WTd3XU)

and I'm going to click on the arrow

* [05:01 - 05:03](https://www.youtube.com/watch?t=301&v=T5A58WTd3XU)

for Hellephant, I'm not going to select it

* [05:03 - 05:06](https://www.youtube.com/watch?t=303&v=T5A58WTd3XU)

because we don't want the inspector to start showing something else.

* [05:06 - 05:09](https://www.youtube.com/watch?t=306&v=T5A58WTd3XU)

We could lock the inspector but I'm not going to do that.

* [05:10 - 05:12](https://www.youtube.com/watch?t=310&v=T5A58WTd3XU)

So I'm going to go and drag Move

* [05:12 - 05:14](https://www.youtube.com/watch?t=312&v=T5A58WTd3XU)

on to the Move slot.

* [05:14 - 05:17](https://www.youtube.com/watch?t=314&v=T5A58WTd3XU)

and I'm going to drag Idle on to Idle

* [05:17 - 05:20](https://www.youtube.com/watch?t=317&v=T5A58WTd3XU)

and Death on to Death.

* [05:20 - 05:22](https://www.youtube.com/watch?t=320&v=T5A58WTd3XU)

So effectively we've got the same states,

* [05:22 - 05:24](https://www.youtube.com/watch?t=322&v=T5A58WTd3XU)

the same state machine, the same logic

* [05:24 - 05:26](https://www.youtube.com/watch?t=324&v=T5A58WTd3XU)

for how he's going to behave,

* [05:26 - 05:28](https://www.youtube.com/watch?t=326&v=T5A58WTd3XU)

but the animation clips within each state are being

* [05:28 - 05:32](https://www.youtube.com/watch?t=328&v=T5A58WTd3XU)

overridden or replaced by these animation clips

* [05:32 - 05:34](https://www.youtube.com/watch?t=332&v=T5A58WTd3XU)

from the model.

* [05:34 - 05:36](https://www.youtube.com/watch?t=334&v=T5A58WTd3XU)

So the animation for that character

* [05:36 - 05:38](https://www.youtube.com/watch?t=336&v=T5A58WTd3XU)

was done within that model.

* [05:38 - 05:40](https://www.youtube.com/watch?t=338&v=T5A58WTd3XU)

The rig doesn't have to be shared, but we can

* [05:40 - 05:42](https://www.youtube.com/watch?t=340&v=T5A58WTd3XU)

replace the animation with whatever we need.

* [05:45 - 05:47](https://www.youtube.com/watch?t=345&v=T5A58WTd3XU)

So the last step then is to go

* [05:47 - 05:49](https://www.youtube.com/watch?t=347&v=T5A58WTd3XU)

to our prefab of the Hellephant

* [05:49 - 05:51](https://www.youtube.com/watch?t=349&v=T5A58WTd3XU)

with all of the scripts setup

* [05:51 - 05:53](https://www.youtube.com/watch?t=351&v=T5A58WTd3XU)

and just instead of dragging on

* [05:53 - 05:55](https://www.youtube.com/watch?t=353&v=T5A58WTd3XU)

the EnemyAC we're going to

* [05:55 - 05:57](https://www.youtube.com/watch?t=355&v=T5A58WTd3XU)

drag on the override controller

* [05:57 - 05:59](https://www.youtube.com/watch?t=357&v=T5A58WTd3XU)

in to the Animator slot.

* [06:01 - 06:03](https://www.youtube.com/watch?t=361&v=T5A58WTd3XU)

HellephantAOC in there.

* [06:05 - 06:07](https://www.youtube.com/watch?t=365&v=T5A58WTd3XU)

So now we have three enemies

* [06:07 - 06:10](https://www.youtube.com/watch?t=367&v=T5A58WTd3XU)

that are setup and ready to be spawned

* [06:10 - 06:12](https://www.youtube.com/watch?t=370&v=T5A58WTd3XU)

in to our game.

* [06:13 - 06:15](https://www.youtube.com/watch?t=373&v=T5A58WTd3XU)

We need some kind of manager object.

* [06:15 - 06:18](https://www.youtube.com/watch?t=375&v=T5A58WTd3XU)

So much like our ScoreManager or anything else

* [06:18 - 06:20](https://www.youtube.com/watch?t=378&v=T5A58WTd3XU)

we want to have an individual object that

* [06:20 - 06:22](https://www.youtube.com/watch?t=380&v=T5A58WTd3XU)

is in charge of the

* [06:22 - 06:24](https://www.youtube.com/watch?t=382&v=T5A58WTd3XU)

spawning of the enemies,

* [06:24 - 06:26](https://www.youtube.com/watch?t=384&v=T5A58WTd3XU)

how frequent it is, etcetera.

* [06:26 - 06:28](https://www.youtube.com/watch?t=386&v=T5A58WTd3XU)

So we like to keep things neat

* [06:28 - 06:30](https://www.youtube.com/watch?t=388&v=T5A58WTd3XU)

here so we're going to create a

* [06:30 - 06:32](https://www.youtube.com/watch?t=390&v=T5A58WTd3XU)

brand new object to manage this on.

* [06:32 - 06:34](https://www.youtube.com/watch?t=392&v=T5A58WTd3XU)

You could, like any script you can attach this

* [06:34 - 06:36](https://www.youtube.com/watch?t=394&v=T5A58WTd3XU)

to any object you want to.

* [06:36 - 06:38](https://www.youtube.com/watch?t=396&v=T5A58WTd3XU)

You could attach it to the environment,

* [06:38 - 06:40](https://www.youtube.com/watch?t=398&v=T5A58WTd3XU)

you could attach it to the camera or anything you expect

* [06:40 - 06:42](https://www.youtube.com/watch?t=400&v=T5A58WTd3XU)

to stay in the game, but we're not going to,

* [06:42 - 06:44](https://www.youtube.com/watch?t=402&v=T5A58WTd3XU)

we're going to create an empty game object.

* [06:44 - 06:46](https://www.youtube.com/watch?t=404&v=T5A58WTd3XU)

There's not really any overhead or any

* [06:46 - 06:48](https://www.youtube.com/watch?t=406&v=T5A58WTd3XU)

problem doing it this way and it allows

* [06:48 - 06:51](https://www.youtube.com/watch?t=408&v=T5A58WTd3XU)

us to keep things modular and separate.

* [06:51 - 06:53](https://www.youtube.com/watch?t=411&v=T5A58WTd3XU)

The great thing about this of course is if we

* [06:53 - 06:55](https://www.youtube.com/watch?t=413&v=T5A58WTd3XU)

wanted to make this a prefab we could

* [06:55 - 06:58](https://www.youtube.com/watch?t=415&v=T5A58WTd3XU)

drop this in to another level and reuse it.

* [06:58 - 07:01](https://www.youtube.com/watch?t=418&v=T5A58WTd3XU)

So I'm going to go to the hierarchy this time

* [07:01 - 07:03](https://www.youtube.com/watch?t=421&v=T5A58WTd3XU)

and go to Create - Empty

* [07:03 - 07:05](https://www.youtube.com/watch?t=423&v=T5A58WTd3XU)

And create an empty game object.

* [07:05 - 07:08](https://www.youtube.com/watch?t=425&v=T5A58WTd3XU)

I'm going to rename this EnemyManager.

* [07:08 - 07:10](https://www.youtube.com/watch?t=428&v=T5A58WTd3XU)

It's a good habit to get in to

* [07:10 - 07:12](https://www.youtube.com/watch?t=430&v=T5A58WTd3XU)

when creating a new game object,

* [07:12 - 07:13](https://www.youtube.com/watch?t=432&v=T5A58WTd3XU)

empty game object, whatever,

* [07:13 - 07:15](https://www.youtube.com/watch?t=433&v=T5A58WTd3XU)

to ensure that it's at (0, 0, 0)

* [07:15 - 07:17](https://www.youtube.com/watch?t=435&v=T5A58WTd3XU)

it's at the origin, just in case

* [07:17 - 07:19](https://www.youtube.com/watch?t=437&v=T5A58WTd3XU)

you might be using it as a container for other things

* [07:19 - 07:22](https://www.youtube.com/watch?t=439&v=T5A58WTd3XU)

and you don't want it to change the co-ordinates of child objects.

* [07:22 - 07:25](https://www.youtube.com/watch?t=442&v=T5A58WTd3XU)

But it's one of those things that might save you some confusion later

* [07:25 - 07:27](https://www.youtube.com/watch?t=445&v=T5A58WTd3XU)

when you're wondering why things are moving around and

* [07:27 - 07:28](https://www.youtube.com/watch?t=447&v=T5A58WTd3XU)

and that's why.

* [07:28 - 07:31](https://www.youtube.com/watch?t=448&v=T5A58WTd3XU)

So just something to keep in mind, it's a good habit to do.

* [07:31 - 07:34](https://www.youtube.com/watch?t=451&v=T5A58WTd3XU)

So I've reset the position to (0, 0, 0).

* [07:34 - 07:36](https://www.youtube.com/watch?t=454&v=T5A58WTd3XU)

Then, very kindly we've prepared a

* [07:36 - 07:38](https://www.youtube.com/watch?t=456&v=T5A58WTd3XU)

script that will do this for you.

* [07:40 - 07:42](https://www.youtube.com/watch?t=460&v=T5A58WTd3XU)

In the Scripts folder under Managers

* [07:42 - 07:44](https://www.youtube.com/watch?t=462&v=T5A58WTd3XU)

you will find EnemyManager and you can simply

* [07:44 - 07:47](https://www.youtube.com/watch?t=464&v=T5A58WTd3XU)

drag and drop onto the EnemyManager.

* [07:47 - 07:50](https://www.youtube.com/watch?t=467&v=T5A58WTd3XU)

So just to show you one other way of assigning a script.

* [07:50 - 07:52](https://www.youtube.com/watch?t=470&v=T5A58WTd3XU)

You can either drop it on to the name in the hierarchy,

* [07:52 - 07:54](https://www.youtube.com/watch?t=472&v=T5A58WTd3XU)

you can also drop it on to empty

* [07:54 - 07:56](https://www.youtube.com/watch?t=474&v=T5A58WTd3XU)

space in the list of components

* [07:56 - 07:58](https://www.youtube.com/watch?t=476&v=T5A58WTd3XU)

in the inspector.

* [07:58 - 08:01](https://www.youtube.com/watch?t=478&v=T5A58WTd3XU)

So I'm going to double click the name of that script to open it.

* [08:03 - 08:05](https://www.youtube.com/watch?t=483&v=T5A58WTd3XU)

This is quite a simple script this one.

* [08:05 - 08:07](https://www.youtube.com/watch?t=485&v=T5A58WTd3XU)

It's got a bunch of public variables

* [08:07 - 08:09](https://www.youtube.com/watch?t=487&v=T5A58WTd3XU)

that need assigning so because this

* [08:09 - 08:11](https://www.youtube.com/watch?t=489&v=T5A58WTd3XU)

script is something we're going to use several times

* [08:11 - 08:13](https://www.youtube.com/watch?t=491&v=T5A58WTd3XU)

and assign different enemies, different spawn points to

* [08:13 - 08:16](https://www.youtube.com/watch?t=493&v=T5A58WTd3XU)

we're not going to want to use the script to find those,

* [08:16 - 08:18](https://www.youtube.com/watch?t=496&v=T5A58WTd3XU)

we're going to want to use the editor to drag and drop

* [08:18 - 08:19](https://www.youtube.com/watch?t=498&v=T5A58WTd3XU)

all of these things.

* [08:19 - 08:21](https://www.youtube.com/watch?t=499&v=T5A58WTd3XU)

That's exactly what we're going to do, so you see a lot of

* [08:21 - 08:23](https://www.youtube.com/watch?t=501&v=T5A58WTd3XU)

public variables up front.

* [08:23 - 08:25](https://www.youtube.com/watch?t=503&v=T5A58WTd3XU)

The first thing if a reference

* [08:25 - 08:27](https://www.youtube.com/watch?t=505&v=T5A58WTd3XU)

to the PlayerHealth.

* [08:27 - 08:29](https://www.youtube.com/watch?t=507&v=T5A58WTd3XU)

We're going to want to check we're only

* [08:29 - 08:31](https://www.youtube.com/watch?t=509&v=T5A58WTd3XU)

going to spawn more enemies if the PlayerHealth

* [08:31 - 08:33](https://www.youtube.com/watch?t=511&v=T5A58WTd3XU)

is more than 0.

* [08:33 - 08:36](https://www.youtube.com/watch?t=513&v=T5A58WTd3XU)

Then we need a reference to the game object of the

* [08:36 - 08:37](https://www.youtube.com/watch?t=516&v=T5A58WTd3XU)

enemy that we want to spawn.

* [08:37 - 08:39](https://www.youtube.com/watch?t=517&v=T5A58WTd3XU)

So those prefabs are effectively

* [08:39 - 08:42](https://www.youtube.com/watch?t=519&v=T5A58WTd3XU)

game objects that are stored as an asset.

* [08:42 - 08:45](https://www.youtube.com/watch?t=522&v=T5A58WTd3XU)

So we have a reference to the particular one we want to spawn.

* [08:45 - 08:47](https://www.youtube.com/watch?t=525&v=T5A58WTd3XU)

Then we have a spawn time, which is 3 seconds

* [08:47 - 08:50](https://www.youtube.com/watch?t=527&v=T5A58WTd3XU)

and obviously because it's public we'll be

* [08:50 - 08:52](https://www.youtube.com/watch?t=530&v=T5A58WTd3XU)

tweaking this, changing it to balance the game.

* [08:52 - 08:56](https://www.youtube.com/watch?t=532&v=T5A58WTd3XU)

And then we have a public transform array,

* [08:56 - 09:00](https://www.youtube.com/watch?t=536&v=T5A58WTd3XU)

so you'll note these 2 open closed square brackets

* [09:00 - 09:02](https://www.youtube.com/watch?t=540&v=T5A58WTd3XU)

called spawnPoints.

* [09:02 - 09:05](https://www.youtube.com/watch?t=542&v=T5A58WTd3XU)

We're not going to use that in this example.

* [09:05 - 09:07](https://www.youtube.com/watch?t=545&v=T5A58WTd3XU)

We're going to use one spawn point per

* [09:07 - 09:09](https://www.youtube.com/watch?t=547&v=T5A58WTd3XU)

instance of this manager.

* [09:09 - 09:11](https://www.youtube.com/watch?t=549&v=T5A58WTd3XU)

But if you wanted to you could have a whole

* [09:11 - 09:13](https://www.youtube.com/watch?t=551&v=T5A58WTd3XU)

bunch of spawn points, and you can take this project away

* [09:13 - 09:15](https://www.youtube.com/watch?t=553&v=T5A58WTd3XU)

and create more spawn points and

* [09:15 - 09:17](https://www.youtube.com/watch?t=555&v=T5A58WTd3XU)

try it out and have fun with it.

* [09:17 - 09:19](https://www.youtube.com/watch?t=557&v=T5A58WTd3XU)

So we just wanted to give you that option.

* [09:19 - 09:22](https://www.youtube.com/watch?t=559&v=T5A58WTd3XU)

So when the game starts

* [09:22 - 09:25](https://www.youtube.com/watch?t=562&v=T5A58WTd3XU)

we use a function called InvokeRepeating

* [09:25 - 09:27](https://www.youtube.com/watch?t=565&v=T5A58WTd3XU)

and what that does is it basically means

* [09:27 - 09:29](https://www.youtube.com/watch?t=567&v=T5A58WTd3XU)

you don't need to have a timer

* [09:29 - 09:31](https://www.youtube.com/watch?t=569&v=T5A58WTd3XU)

effectively for something that's going to repeat.

* [09:33 - 09:35](https://www.youtube.com/watch?t=573&v=T5A58WTd3XU)

From the very start of the game we call

* [09:35 - 09:39](https://www.youtube.com/watch?t=575&v=T5A58WTd3XU)

the spawn function, so we name it as a string,

* [09:39 - 09:41](https://www.youtube.com/watch?t=579&v=T5A58WTd3XU)

and we have an amount of time

* [09:41 - 09:43](https://www.youtube.com/watch?t=581&v=T5A58WTd3XU)

to wait before doing it

* [09:43 - 09:46](https://www.youtube.com/watch?t=583&v=T5A58WTd3XU)

and we have an amount of time to wait before repeating it.

* [09:46 - 09:48](https://www.youtube.com/watch?t=586&v=T5A58WTd3XU)

We've just reused spawnTime, we could set

* [09:48 - 09:51](https://www.youtube.com/watch?t=588&v=T5A58WTd3XU)

that to 0 but we've just reused it

* [09:51 - 09:54](https://www.youtube.com/watch?t=591&v=T5A58WTd3XU)

so there's a bit of a breathing space at the start of the game.

* [09:54 - 09:56](https://www.youtube.com/watch?t=594&v=T5A58WTd3XU)

So InvokeRepeating will just repeat

* [09:56 - 09:59](https://www.youtube.com/watch?t=596&v=T5A58WTd3XU)

this every, well, 3 seconds.

* [09:59 - 10:02](https://www.youtube.com/watch?t=599&v=T5A58WTd3XU)

And we're checking if the player has

* [10:02 - 10:05](https://www.youtube.com/watch?t=602&v=T5A58WTd3XU)

some health and if he doesn't we return

* [10:05 - 10:09](https://www.youtube.com/watch?t=605&v=T5A58WTd3XU)

but if he does, if he's still alive and kicking

* [10:09 - 10:12](https://www.youtube.com/watch?t=609&v=T5A58WTd3XU)

then we are going to instantiate

* [10:12 - 10:14](https://www.youtube.com/watch?t=612&v=T5A58WTd3XU)

our enemy in to the game.

* [10:14 - 10:18](https://www.youtube.com/watch?t=614&v=T5A58WTd3XU)

So we have this integer called spawnPointIndex.

* [10:18 - 10:21](https://www.youtube.com/watch?t=618&v=T5A58WTd3XU)

Now when you create an array, a list of things,

* [10:21 - 10:23](https://www.youtube.com/watch?t=621&v=T5A58WTd3XU)

an integer is there to represent

* [10:23 - 10:25](https://www.youtube.com/watch?t=623&v=T5A58WTd3XU)

the point in the array.

* [10:25 - 10:27](https://www.youtube.com/watch?t=625&v=T5A58WTd3XU)

So as Mike mentioned earlier,

* [10:27 - 10:31](https://www.youtube.com/watch?t=627&v=T5A58WTd3XU)

any list of things, any time a computer counts

* [10:31 - 10:33](https://www.youtube.com/watch?t=631&v=T5A58WTd3XU)

it starts at 0.

* [10:33 - 10:35](https://www.youtube.com/watch?t=633&v=T5A58WTd3XU)

So this is the index, the index is the number

* [10:35 - 10:37](https://www.youtube.com/watch?t=635&v=T5A58WTd3XU)

in the list as an integer.

* [10:37 - 10:40](https://www.youtube.com/watch?t=637&v=T5A58WTd3XU)

So we want to pick a particular spawn point

* [10:40 - 10:42](https://www.youtube.com/watch?t=640&v=T5A58WTd3XU)

and spawn from that point.

* [10:42 - 10:44](https://www.youtube.com/watch?t=642&v=T5A58WTd3XU)

This way if you do choose to use

* [10:44 - 10:47](https://www.youtube.com/watch?t=644&v=T5A58WTd3XU)

an array, a number of different spawn points

* [10:47 - 10:49](https://www.youtube.com/watch?t=647&v=T5A58WTd3XU)

then it will pick a random one to spawn at,

* [10:49 - 10:51](https://www.youtube.com/watch?t=649&v=T5A58WTd3XU)

making the game a bit more lively.

* [10:51 - 10:55](https://www.youtube.com/watch?t=651&v=T5A58WTd3XU)

So the way we pick a random one, is we say Random.Range.

* [10:55 - 10:59](https://www.youtube.com/watch?t=655&v=T5A58WTd3XU)

We start at 0 and we pick any number up to

* [10:59 - 11:02](https://www.youtube.com/watch?t=659&v=T5A58WTd3XU)

the length, so the final number of spawn points.

* [11:02 - 11:05](https://www.youtube.com/watch?t=662&v=T5A58WTd3XU)

It will pick any of those spawn points.

* [11:05 - 11:08](https://www.youtube.com/watch?t=665&v=T5A58WTd3XU)

It can help to think of an array as an accordion folder,

* [11:08 - 11:09](https://www.youtube.com/watch?t=668&v=T5A58WTd3XU)

if you know what that is,

* [11:09 - 11:11](https://www.youtube.com/watch?t=669&v=T5A58WTd3XU)

a folder with a bunch of slots in it.

* [11:11 - 11:13](https://www.youtube.com/watch?t=671&v=T5A58WTd3XU)

It's still really one folder, that's what an array is,

* [11:13 - 11:16](https://www.youtube.com/watch?t=673&v=T5A58WTd3XU)

it's just one variable, but if you open it

* [11:16 - 11:18](https://www.youtube.com/watch?t=676&v=T5A58WTd3XU)

you've got a whole bunch of slots inside.

* [11:18 - 11:20](https://www.youtube.com/watch?t=678&v=T5A58WTd3XU)

And that's effectively how an array behaves,

* [11:20 - 11:22](https://www.youtube.com/watch?t=680&v=T5A58WTd3XU)

you can look at the first slot, the second, the third,

* [11:22 - 11:24](https://www.youtube.com/watch?t=682&v=T5A58WTd3XU)

the fourth and you can put stuff in there.

* [11:24 - 11:26](https://www.youtube.com/watch?t=684&v=T5A58WTd3XU)

So an array of these spawn points is just

* [11:26 - 11:28](https://www.youtube.com/watch?t=686&v=T5A58WTd3XU)

a single object, a single array of those spawn points,

* [11:28 - 11:30](https://www.youtube.com/watch?t=688&v=T5A58WTd3XU)

if you open it up you will see all of the

* [11:30 - 11:32](https://www.youtube.com/watch?t=690&v=T5A58WTd3XU)

various ones inside of it.

* [11:32 - 11:34](https://www.youtube.com/watch?t=692&v=T5A58WTd3XU)

And that's what we're doing, we're just picking a random one

* [11:34 - 11:37](https://www.youtube.com/watch?t=694&v=T5A58WTd3XU)

pulling that out and saying 'that's our spawn point'.

* [11:37 - 11:39](https://www.youtube.com/watch?t=697&v=T5A58WTd3XU)

And we're reusing that information

* [11:39 - 11:42](https://www.youtube.com/watch?t=699&v=T5A58WTd3XU)

so we're saving that as a number

* [11:42 - 11:44](https://www.youtube.com/watch?t=702&v=T5A58WTd3XU)

so we're picking a number and saving in to that variable.

* [11:44 - 11:46](https://www.youtube.com/watch?t=704&v=T5A58WTd3XU)

And the reason we do that is because of this

* [11:46 - 11:48](https://www.youtube.com/watch?t=706&v=T5A58WTd3XU)

instantiate line.

* [11:48 - 11:51](https://www.youtube.com/watch?t=708&v=T5A58WTd3XU)

Instantiate just means create an instance of something,

* [11:51 - 11:55](https://www.youtube.com/watch?t=711&v=T5A58WTd3XU)

so spawns effectively is another word for it.

* [11:55 - 12:01](https://www.youtube.com/watch?t=715&v=T5A58WTd3XU)

And it has 3 properties, the thing to spawn, where to spawn it

* [12:01 - 12:05](https://www.youtube.com/watch?t=721&v=T5A58WTd3XU)

and what rotation it should have when it's created.

* [12:05 - 12:07](https://www.youtube.com/watch?t=725&v=T5A58WTd3XU)

So the first one is obviously the enemy,

* [12:07 - 12:09](https://www.youtube.com/watch?t=727&v=T5A58WTd3XU)

the one that we assigned to our public

* [12:09 - 12:11](https://www.youtube.com/watch?t=729&v=T5A58WTd3XU)

variable and we'll do that shortly.

* [12:11 - 12:14](https://www.youtube.com/watch?t=731&v=T5A58WTd3XU)

And then the second one is using that spawnPoints

* [12:14 - 12:16](https://www.youtube.com/watch?t=734&v=T5A58WTd3XU)

array and then we're parsing in to

* [12:16 - 12:19](https://www.youtube.com/watch?t=736&v=T5A58WTd3XU)

the square brackets which point in the array.

* [12:19 - 12:21](https://www.youtube.com/watch?t=739&v=T5A58WTd3XU)

So if I was to parse in 0

* [12:21 - 12:23](https://www.youtube.com/watch?t=741&v=T5A58WTd3XU)

it would choose the first transform that we

* [12:23 - 12:25](https://www.youtube.com/watch?t=743&v=T5A58WTd3XU)

drag and drop in to our list.

* [12:25 - 12:27](https://www.youtube.com/watch?t=745&v=T5A58WTd3XU)

But we're going to allow it to

* [12:27 - 12:30](https://www.youtube.com/watch?t=747&v=T5A58WTd3XU)

use the random one that it's just picked

* [12:30 - 12:32](https://www.youtube.com/watch?t=750&v=T5A58WTd3XU)

so every time Spawn runs it will pick

* [12:32 - 12:35](https://www.youtube.com/watch?t=752&v=T5A58WTd3XU)

a random number within that list of different spawn points,

* [12:35 - 12:38](https://www.youtube.com/watch?t=755&v=T5A58WTd3XU)

parse it in to the position and rotation.

* [12:38 - 12:40](https://www.youtube.com/watch?t=758&v=T5A58WTd3XU)

So remember that this is a transform

* [12:40 - 12:45](https://www.youtube.com/watch?t=760&v=T5A58WTd3XU)

and every transform has a position and a rotation.

* [12:46 - 12:49](https://www.youtube.com/watch?t=766&v=T5A58WTd3XU)

But that is very simply our EnemyManager.

* [12:50 - 12:52](https://www.youtube.com/watch?t=770&v=T5A58WTd3XU)

I'm going to switch back to Unity now.

* [12:52 - 12:54](https://www.youtube.com/watch?t=772&v=T5A58WTd3XU)

So we have this EnemyManager game object

* [12:54 - 12:56](https://www.youtube.com/watch?t=774&v=T5A58WTd3XU)

now and we have this EnemyManager script

* [12:56 - 12:58](https://www.youtube.com/watch?t=776&v=T5A58WTd3XU)

on it and as was hinted at

* [12:58 - 13:01](https://www.youtube.com/watch?t=778&v=T5A58WTd3XU)

this EnemyManager script was built to be modular,

* [13:01 - 13:03](https://www.youtube.com/watch?t=781&v=T5A58WTd3XU)

which means we can put stuff on, we can take stuff off

* [13:03 - 13:04](https://www.youtube.com/watch?t=783&v=T5A58WTd3XU)

we can have a bunch of spawn points,

* [13:04 - 13:06](https://www.youtube.com/watch?t=784&v=T5A58WTd3XU)

kind of future proofing this game so you guys can keep

* [13:06 - 13:08](https://www.youtube.com/watch?t=786&v=T5A58WTd3XU)

adding to it and stuff like that.

* [13:08 - 13:12](https://www.youtube.com/watch?t=788&v=T5A58WTd3XU)

Before we start putting in

* [13:12 - 13:14](https://www.youtube.com/watch?t=792&v=T5A58WTd3XU)

the enemies and get them spawning

* [13:14 - 13:16](https://www.youtube.com/watch?t=794&v=T5A58WTd3XU)

we have to generate these spawn points

* [13:16 - 13:19](https://www.youtube.com/watch?t=796&v=T5A58WTd3XU)

where the enemies are going to appear at.

* [13:19 - 13:21](https://www.youtube.com/watch?t=799&v=T5A58WTd3XU)

So the first thing we're going to do is

* [13:21 - 13:24](https://www.youtube.com/watch?t=801&v=T5A58WTd3XU)

setup a spawn point for our Zombunny.

* [13:24 - 13:26](https://www.youtube.com/watch?t=804&v=T5A58WTd3XU)

And also if you can still see the animator window here

* [13:26 - 13:28](https://www.youtube.com/watch?t=806&v=T5A58WTd3XU)

we're just going to click back over to scene view

* [13:28 - 13:31](https://www.youtube.com/watch?t=808&v=T5A58WTd3XU)

because we don't really need the animator view anymore.

* [13:31 - 13:33](https://www.youtube.com/watch?t=811&v=T5A58WTd3XU)

What I'm going to do is create an empty by

* [13:33 - 13:35](https://www.youtube.com/watch?t=813&v=T5A58WTd3XU)

clicking the Create drop down in the hierarchy view

* [13:35 - 13:37](https://www.youtube.com/watch?t=815&v=T5A58WTd3XU)

and this empty game object is going to be my

* [13:37 - 13:39](https://www.youtube.com/watch?t=817&v=T5A58WTd3XU)

Zombunny spawn point.

* [13:39 - 13:41](https://www.youtube.com/watch?t=819&v=T5A58WTd3XU)

As such I'm going to name it

* [13:41 - 13:43](https://www.youtube.com/watch?t=821&v=T5A58WTd3XU)

ZombunnySpawnPoint and we can see it

* [13:43 - 13:45](https://www.youtube.com/watch?t=823&v=T5A58WTd3XU)

where it kind of exists right now

* [13:45 - 13:47](https://www.youtube.com/watch?t=825&v=T5A58WTd3XU)

but that's not where we want it to go.

* [13:47 - 13:49](https://www.youtube.com/watch?t=827&v=T5A58WTd3XU)

And so what we want to do is

* [13:49 - 13:52](https://www.youtube.com/watch?t=829&v=T5A58WTd3XU)

place this where we want the Zombunnies to come from.

* [13:52 - 13:54](https://www.youtube.com/watch?t=832&v=T5A58WTd3XU)

Now as was hinted previously we could

* [13:54 - 13:56](https://www.youtube.com/watch?t=834&v=T5A58WTd3XU)

have a bunch of different spawn points but we'll

* [13:56 - 13:58](https://www.youtube.com/watch?t=836&v=T5A58WTd3XU)

only have one per enemy for now.

* [13:58 - 14:00](https://www.youtube.com/watch?t=838&v=T5A58WTd3XU)

As we move around in our scene we

* [14:00 - 14:02](https://www.youtube.com/watch?t=840&v=T5A58WTd3XU)

can see the spawn points

* [14:02 - 14:04](https://www.youtube.com/watch?t=842&v=T5A58WTd3XU)

where it is right now with these arrows

* [14:04 - 14:06](https://www.youtube.com/watch?t=844&v=T5A58WTd3XU)

to denote where it is in the scene,

* [14:06 - 14:08](https://www.youtube.com/watch?t=846&v=T5A58WTd3XU)

but we can also give a customised

* [14:08 - 14:10](https://www.youtube.com/watch?t=848&v=T5A58WTd3XU)

icon to this object so it becomes

* [14:10 - 14:13](https://www.youtube.com/watch?t=850&v=T5A58WTd3XU)

much easier to see it in the scene view

* [14:13 - 14:15](https://www.youtube.com/watch?t=853&v=T5A58WTd3XU)

and it's really easy to do so I'm going to

* [14:15 - 14:17](https://www.youtube.com/watch?t=855&v=T5A58WTd3XU)

ensure that ZombunnySpawnPoint is selected

* [14:17 - 14:19](https://www.youtube.com/watch?t=857&v=T5A58WTd3XU)

in my hierarchy and then I'm going to

* [14:19 - 14:21](https://www.youtube.com/watch?t=859&v=T5A58WTd3XU)

look at the top of the inspector and

* [14:21 - 14:25](https://www.youtube.com/watch?t=861&v=T5A58WTd3XU)

see this little colored cube right here

* [14:25 - 14:27](https://www.youtube.com/watch?t=865&v=T5A58WTd3XU)

at the top of the inspector, and if I click that

* [14:27 - 14:30](https://www.youtube.com/watch?t=867&v=T5A58WTd3XU)

I get a drop down that gives me all these sorts of

* [14:30 - 14:34](https://www.youtube.com/watch?t=870&v=T5A58WTd3XU)

options and using this I can pick an icon.

* [14:34 - 14:38](https://www.youtube.com/watch?t=874&v=T5A58WTd3XU)

Now the Zombunny is blue, I'll pick blue so

* [14:38 - 14:39](https://www.youtube.com/watch?t=878&v=T5A58WTd3XU)

they're color coordinated.

* [14:39 - 14:41](https://www.youtube.com/watch?t=879&v=T5A58WTd3XU)

Now that I've selected that

* [14:41 - 14:43](https://www.youtube.com/watch?t=881&v=T5A58WTd3XU)

if I look back in my scene view

* [14:43 - 14:46](https://www.youtube.com/watch?t=883&v=T5A58WTd3XU)

I'm going to see that ZombunnySpawnPoint

* [14:46 - 14:49](https://www.youtube.com/watch?t=886&v=T5A58WTd3XU)

has a name with this icon around it.

* [14:49 - 14:51](https://www.youtube.com/watch?t=889&v=T5A58WTd3XU)

So it's very easy now to see exactly

* [14:51 - 14:53](https://www.youtube.com/watch?t=891&v=T5A58WTd3XU)

where that is, it stands out.

* [14:53 - 14:55](https://www.youtube.com/watch?t=893&v=T5A58WTd3XU)

I'm going to now position it.

* [14:55 - 14:57](https://www.youtube.com/watch?t=895&v=T5A58WTd3XU)

I'm going to supply the coordinates

* [14:57 - 15:00](https://www.youtube.com/watch?t=897&v=T5A58WTd3XU)

and rotation to position these, this is one of those things

* [15:00 - 15:02](https://www.youtube.com/watch?t=900&v=T5A58WTd3XU)

where it's a really good idea to supply the exact

* [15:02 - 15:05](https://www.youtube.com/watch?t=902&v=T5A58WTd3XU)

values that we provide

* [15:05 - 15:07](https://www.youtube.com/watch?t=905&v=T5A58WTd3XU)

only because these spawn points are kind of

* [15:07 - 15:09](https://www.youtube.com/watch?t=907&v=T5A58WTd3XU)

behind bits of geometry

* [15:09 - 15:11](https://www.youtube.com/watch?t=909&v=T5A58WTd3XU)

inside a mouse hole, stuff like that,

* [15:11 - 15:13](https://www.youtube.com/watch?t=911&v=T5A58WTd3XU)

so if you're off a little bit your enemies are going to

* [15:13 - 15:16](https://www.youtube.com/watch?t=913&v=T5A58WTd3XU)

start spawning in walls and they're not going to

* [15:16 - 15:18](https://www.youtube.com/watch?t=916&v=T5A58WTd3XU)

because to come out and it'll be a problem,

* [15:18 - 15:20](https://www.youtube.com/watch?t=918&v=T5A58WTd3XU)

especially in the mouse hole, which has a

* [15:20 - 15:22](https://www.youtube.com/watch?t=920&v=T5A58WTd3XU)

very narrow opening so it's very important

* [15:22 - 15:25](https://www.youtube.com/watch?t=922&v=T5A58WTd3XU)

to get these numbers exactly as we have them.

* [15:25 - 15:27](https://www.youtube.com/watch?t=925&v=T5A58WTd3XU)

So for the ZombunnySpawnPoint

* [15:27 - 15:32](https://www.youtube.com/watch?t=927&v=T5A58WTd3XU)

we're going to do the position of X to be -20.5.

* [15:32 - 15:35](https://www.youtube.com/watch?t=932&v=T5A58WTd3XU)

We're going to have Y be 0,

* [15:35 - 15:39](https://www.youtube.com/watch?t=935&v=T5A58WTd3XU)

and the Z value is going to be 12.5.

* [15:40 - 15:42](https://www.youtube.com/watch?t=940&v=T5A58WTd3XU)

We are then going to provide a rotation

* [15:42 - 15:45](https://www.youtube.com/watch?t=942&v=T5A58WTd3XU)

which is 0 in the X axis

* [15:45 - 15:49](https://www.youtube.com/watch?t=945&v=T5A58WTd3XU)

130 in the Y axis

* [15:49 - 15:51](https://www.youtube.com/watch?t=949&v=T5A58WTd3XU)

and 0 in the Z axis.

* [15:52 - 15:54](https://www.youtube.com/watch?t=952&v=T5A58WTd3XU)

Now we have the ZombunnySpawnPoint and

* [15:54 - 15:56](https://www.youtube.com/watch?t=954&v=T5A58WTd3XU)

it's where we want it and if I look

* [15:56 - 15:58](https://www.youtube.com/watch?t=956&v=T5A58WTd3XU)

in the scene view

* [15:58 - 16:00](https://www.youtube.com/watch?t=958&v=T5A58WTd3XU)

there it is, I can see it, it's much easier to

* [16:00 - 16:02](https://www.youtube.com/watch?t=960&v=T5A58WTd3XU)

see now because it has that blue icon.

* [16:02 - 16:06](https://www.youtube.com/watch?t=962&v=T5A58WTd3XU)

So let's create our ZombearSpawnPoint.

* [16:06 - 16:10](https://www.youtube.com/watch?t=966&v=T5A58WTd3XU)

Now again I can right click Create New and stuff like that

* [16:10 - 16:12](https://www.youtube.com/watch?t=970&v=T5A58WTd3XU)

but in this instance what I'm going to do is duplicate

* [16:12 - 16:14](https://www.youtube.com/watch?t=972&v=T5A58WTd3XU)

the one I've already made.

* [16:14 - 16:16](https://www.youtube.com/watch?t=974&v=T5A58WTd3XU)

And so I can click on the

* [16:16 - 16:18](https://www.youtube.com/watch?t=976&v=T5A58WTd3XU)

ZombunnySpawnPoint in the scene and I can

* [16:18 - 16:20](https://www.youtube.com/watch?t=978&v=T5A58WTd3XU)

right click and select Duplicate

* [16:20 - 16:23](https://www.youtube.com/watch?t=980&v=T5A58WTd3XU)

or I can simply click on it in the hierarchy

* [16:23 - 16:25](https://www.youtube.com/watch?t=983&v=T5A58WTd3XU)

and hit Command-D on a Mac

* [16:25 - 16:27](https://www.youtube.com/watch?t=985&v=T5A58WTd3XU)

or Control-D on a PC.

* [16:27 - 16:29](https://www.youtube.com/watch?t=987&v=T5A58WTd3XU)

And that's going to create an exact duplicate.

* [16:29 - 16:31](https://www.youtube.com/watch?t=989&v=T5A58WTd3XU)

Same name, same icon, same position,

* [16:31 - 16:33](https://www.youtube.com/watch?t=991&v=T5A58WTd3XU)

same everything.

* [16:33 - 16:35](https://www.youtube.com/watch?t=993&v=T5A58WTd3XU)

Now we have this as a duplicate,

* [16:35 - 16:37](https://www.youtube.com/watch?t=995&v=T5A58WTd3XU)

so let's go ahead and change it slightly.

* [16:37 - 16:41](https://www.youtube.com/watch?t=997&v=T5A58WTd3XU)

I'm going to rename it from ZombunnySpawnPoint

* [16:41 - 16:45](https://www.youtube.com/watch?t=1001&v=T5A58WTd3XU)

to ZombearSpawnPoint.

* [16:45 - 16:48](https://www.youtube.com/watch?t=1005&v=T5A58WTd3XU)

And I'm going to change it's gizmo,

* [16:48 - 16:51](https://www.youtube.com/watch?t=1008&v=T5A58WTd3XU)

again using the drop down in the inspector

* [16:51 - 16:54](https://www.youtube.com/watch?t=1011&v=T5A58WTd3XU)

I'm going to change it from a blue oval

* [16:54 - 16:56](https://www.youtube.com/watch?t=1014&v=T5A58WTd3XU)

to a sort of fuchsia

* [16:56 - 16:58](https://www.youtube.com/watch?t=1016&v=T5A58WTd3XU)

oval since the Zombear is kind of pink.

* [17:01 - 17:04](https://www.youtube.com/watch?t=1021&v=T5A58WTd3XU)

And then I'm going to change it's position and it's rotation.

* [17:04 - 17:06](https://www.youtube.com/watch?t=1024&v=T5A58WTd3XU)

Again it's fairly important to have these accurate.

* [17:06 - 17:11](https://www.youtube.com/watch?t=1026&v=T5A58WTd3XU)

Mine is going to be 22.5 in the X axis,

* [17:11 - 17:17](https://www.youtube.com/watch?t=1031&v=T5A58WTd3XU)

0 in the Y axis and 15 in the Z axis.

* [17:17 - 17:19](https://www.youtube.com/watch?t=1037&v=T5A58WTd3XU)

The rotation of this is going to be

* [17:19 - 17:28](https://www.youtube.com/watch?t=1039&v=T5A58WTd3XU)

0 in the X axis, 240 in the Y axis and 0 in the Z axis.

* [17:29 - 17:31](https://www.youtube.com/watch?t=1049&v=T5A58WTd3XU)

Now we've created 2 let's go ahead and

* [17:31 - 17:34](https://www.youtube.com/watch?t=1051&v=T5A58WTd3XU)

create the last one, we're going to do the Hellephant.

* [17:34 - 17:36](https://www.youtube.com/watch?t=1054&v=T5A58WTd3XU)

And the steps are going to be very similar.

* [17:36 - 17:38](https://www.youtube.com/watch?t=1056&v=T5A58WTd3XU)

So with Zombear selected

* [17:38 - 17:40](https://www.youtube.com/watch?t=1058&v=T5A58WTd3XU)

again I'm just going to press Control-D or

* [17:40 - 17:42](https://www.youtube.com/watch?t=1060&v=T5A58WTd3XU)

Command-D or right click and select

* [17:42 - 17:45](https://www.youtube.com/watch?t=1062&v=T5A58WTd3XU)

Duplicate, just make a duplicate of that object.

* [17:45 - 17:49](https://www.youtube.com/watch?t=1065&v=T5A58WTd3XU)

And we are going to rename it from ZombearSpawnPoint

* [17:49 - 17:51](https://www.youtube.com/watch?t=1069&v=T5A58WTd3XU)

to be HellephantSpawnPoint.

* [17:56 - 17:58](https://www.youtube.com/watch?t=1076&v=T5A58WTd3XU)

Once created, again in the

* [17:58 - 18:00](https://www.youtube.com/watch?t=1078&v=T5A58WTd3XU)

inspector I'm going to click the

* [18:00 - 18:02](https://www.youtube.com/watch?t=1080&v=T5A58WTd3XU)

gizmo and this time I'm going to choose

* [18:02 - 18:04](https://www.youtube.com/watch?t=1082&v=T5A58WTd3XU)

a yellow gizmo because the

* [18:04 - 18:07](https://www.youtube.com/watch?t=1084&v=T5A58WTd3XU)

Hellephant has that yellow stripe to it.

* [18:09 - 18:11](https://www.youtube.com/watch?t=1089&v=T5A58WTd3XU)

And then I'm going to set it's position to be

* [18:11 - 18:19](https://www.youtube.com/watch?t=1091&v=T5A58WTd3XU)

0 in the X axis, 0 in the Y axis, 32 in the Z axis.

* [18:19 - 18:21](https://www.youtube.com/watch?t=1099&v=T5A58WTd3XU)

I will then set it's rotation to be

* [18:21 - 18:29](https://www.youtube.com/watch?t=1101&v=T5A58WTd3XU)

0 in the X axis, 230 in the Y axis and 0 in the Z axis.

* [18:29 - 18:31](https://www.youtube.com/watch?t=1109&v=T5A58WTd3XU)

And so if we now look at our scene view

* [18:31 - 18:33](https://www.youtube.com/watch?t=1111&v=T5A58WTd3XU)

in a zoomed out way we can see

* [18:33 - 18:35](https://www.youtube.com/watch?t=1113&v=T5A58WTd3XU)

all three of our spawn points.

* [18:35 - 18:37](https://www.youtube.com/watch?t=1115&v=T5A58WTd3XU)

We can see exactly where our enemies are

* [18:37 - 18:39](https://www.youtube.com/watch?t=1117&v=T5A58WTd3XU)

going to be coming from once we have

* [18:39 - 18:42](https://www.youtube.com/watch?t=1119&v=T5A58WTd3XU)

the EnemyManager able to start spawning those.

* [18:43 - 18:46](https://www.youtube.com/watch?t=1123&v=T5A58WTd3XU)

So we're just going to setup the first

* [18:46 - 18:48](https://www.youtube.com/watch?t=1126&v=T5A58WTd3XU)

three instances of the EnemyManager to

* [18:48 - 18:51](https://www.youtube.com/watch?t=1128&v=T5A58WTd3XU)

spawn our Zombunny.

* [18:51 - 18:53](https://www.youtube.com/watch?t=1131&v=T5A58WTd3XU)

So if you click back on your EnemyManager you will

* [18:53 - 18:55](https://www.youtube.com/watch?t=1133&v=T5A58WTd3XU)

see your EnemyManager script

* [18:55 - 18:57](https://www.youtube.com/watch?t=1135&v=T5A58WTd3XU)

and that's setup there ready to go but we already

* [18:57 - 19:00](https://www.youtube.com/watch?t=1137&v=T5A58WTd3XU)

have things to fill in.

* [19:00 - 19:02](https://www.youtube.com/watch?t=1140&v=T5A58WTd3XU)

The first thing we need to fill in is PlayerHealth,

* [19:02 - 19:04](https://www.youtube.com/watch?t=1142&v=T5A58WTd3XU)

again we don't want our EnemyManager

* [19:04 - 19:06](https://www.youtube.com/watch?t=1144&v=T5A58WTd3XU)

to spawn enemies when the player is dead

* [19:06 - 19:08](https://www.youtube.com/watch?t=1146&v=T5A58WTd3XU)

and so what we're going to do is locate

* [19:08 - 19:10](https://www.youtube.com/watch?t=1148&v=T5A58WTd3XU)

the player and we're going to click and drag

* [19:10 - 19:13](https://www.youtube.com/watch?t=1150&v=T5A58WTd3XU)

on to the PlayerHealth property

* [19:13 - 19:15](https://www.youtube.com/watch?t=1153&v=T5A58WTd3XU)

of the EnemyManager and that's going to locate the

* [19:15 - 19:17](https://www.youtube.com/watch?t=1155&v=T5A58WTd3XU)

PlayerHealth script so that it only spawns at

* [19:17 - 19:19](https://www.youtube.com/watch?t=1157&v=T5A58WTd3XU)

the appropriate times.

* [19:19 - 19:22](https://www.youtube.com/watch?t=1159&v=T5A58WTd3XU)

Then we have this next section for enemy.

* [19:22 - 19:24](https://www.youtube.com/watch?t=1162&v=T5A58WTd3XU)

This is the enemy that's going to spawn,

* [19:24 - 19:26](https://www.youtube.com/watch?t=1164&v=T5A58WTd3XU)

but if I look in my scene I don't

* [19:26 - 19:28](https://www.youtube.com/watch?t=1166&v=T5A58WTd3XU)

have any enemies, there are none,

* [19:28 - 19:30](https://www.youtube.com/watch?t=1168&v=T5A58WTd3XU)

do we need to specify what enemy we're going to spawn,

* [19:30 - 19:31](https://www.youtube.com/watch?t=1170&v=T5A58WTd3XU)

we don't have any objects here.

* [19:31 - 19:33](https://www.youtube.com/watch?t=1171&v=T5A58WTd3XU)

Luckily as Will has already mentioned,

* [19:33 - 19:35](https://www.youtube.com/watch?t=1173&v=T5A58WTd3XU)

because he's classy like that,

* [19:35 - 19:37](https://www.youtube.com/watch?t=1175&v=T5A58WTd3XU)

is prefabs are in fact game objects

* [19:37 - 19:40](https://www.youtube.com/watch?t=1177&v=T5A58WTd3XU)

so if we look down in the Prefabs folder

* [19:40 - 19:42](https://www.youtube.com/watch?t=1180&v=T5A58WTd3XU)

we will notice our enemies,

* [19:42 - 19:46](https://www.youtube.com/watch?t=1182&v=T5A58WTd3XU)

we'll notice our Zombunny and our Zombear and our Hellephant

* [19:46 - 19:48](https://www.youtube.com/watch?t=1186&v=T5A58WTd3XU)

are there and they are prefabs.

* [19:48 - 19:50](https://www.youtube.com/watch?t=1188&v=T5A58WTd3XU)

They don't exist in the scene

* [19:50 - 19:52](https://www.youtube.com/watch?t=1190&v=T5A58WTd3XU)

but they are still game objects

* [19:52 - 19:55](https://www.youtube.com/watch?t=1192&v=T5A58WTd3XU)

and as such we can click and drag them

* [19:55 - 19:57](https://www.youtube.com/watch?t=1195&v=T5A58WTd3XU)

in to the enemy property

* [19:57 - 19:59](https://www.youtube.com/watch?t=1197&v=T5A58WTd3XU)

on our EnemyManager script

* [19:59 - 20:01](https://www.youtube.com/watch?t=1199&v=T5A58WTd3XU)

and now it knows that it's going to

* [20:01 - 20:07](https://www.youtube.com/watch?t=1201&v=T5A58WTd3XU)

instantiate or create copies of that Zombunny prefab.

* [20:07 - 20:10](https://www.youtube.com/watch?t=1207&v=T5A58WTd3XU)

Now we can see SpawnTime is 3,

* [20:10 - 20:12](https://www.youtube.com/watch?t=1210&v=T5A58WTd3XU)

what that means is when our game starts

* [20:12 - 20:15](https://www.youtube.com/watch?t=1212&v=T5A58WTd3XU)

it's going to wait 3 seconds and then spawn a Zombunny.

* [20:15 - 20:17](https://www.youtube.com/watch?t=1215&v=T5A58WTd3XU)

And then it's going to wait 3 more seconds

* [20:17 - 20:20](https://www.youtube.com/watch?t=1217&v=T5A58WTd3XU)

and spawn a Zombunny and so on and so forth.

* [20:20 - 20:21](https://www.youtube.com/watch?t=1220&v=T5A58WTd3XU)

Over and over and over again.

* [20:21 - 20:24](https://www.youtube.com/watch?t=1221&v=T5A58WTd3XU)

But it still doesn't know where to spawn those.

* [20:24 - 20:26](https://www.youtube.com/watch?t=1224&v=T5A58WTd3XU)

We have the script, we have the player, we have the enemy,

* [20:26 - 20:30](https://www.youtube.com/watch?t=1226&v=T5A58WTd3XU)

we have the time, but if we actually expand this

* [20:30 - 20:33](https://www.youtube.com/watch?t=1230&v=T5A58WTd3XU)

spawnPoints we will see size 0.

* [20:33 - 20:35](https://www.youtube.com/watch?t=1233&v=T5A58WTd3XU)

Remember, this is an array,

* [20:35 - 20:38](https://www.youtube.com/watch?t=1235&v=T5A58WTd3XU)

it's a collection, we haven't given it anything yet.

* [20:38 - 20:40](https://www.youtube.com/watch?t=1238&v=T5A58WTd3XU)

It's size is 0, there's nothing in here.

* [20:40 - 20:43](https://www.youtube.com/watch?t=1240&v=T5A58WTd3XU)

Now there's a lot of manual ways I can add to this

* [20:43 - 20:45](https://www.youtube.com/watch?t=1243&v=T5A58WTd3XU)

but there's actually a really simple way.

* [20:45 - 20:47](https://www.youtube.com/watch?t=1245&v=T5A58WTd3XU)

What I'm going to do is ensure that SpawnPoints

* [20:47 - 20:49](https://www.youtube.com/watch?t=1247&v=T5A58WTd3XU)

is actually collapsed, and then I'm simply

* [20:49 - 20:53](https://www.youtube.com/watch?t=1249&v=T5A58WTd3XU)

going to locate ZombunnySpawnPoint

* [20:53 - 20:55](https://www.youtube.com/watch?t=1253&v=T5A58WTd3XU)

and click and drag it on to the name

* [20:55 - 20:58](https://www.youtube.com/watch?t=1255&v=T5A58WTd3XU)

Spawn Points. Not down here anywhere,

* [20:58 - 21:00](https://www.youtube.com/watch?t=1258&v=T5A58WTd3XU)

You will see on my mouse if you look at my screen

* [21:00 - 21:02](https://www.youtube.com/watch?t=1260&v=T5A58WTd3XU)

when I click and drag and I move over the

* [21:02 - 21:05](https://www.youtube.com/watch?t=1262&v=T5A58WTd3XU)

SpawnPoints I get this great + icon

* [21:05 - 21:07](https://www.youtube.com/watch?t=1265&v=T5A58WTd3XU)

If I let go now it's added to

* [21:07 - 21:09](https://www.youtube.com/watch?t=1267&v=T5A58WTd3XU)

this collection.

* [21:09 - 21:11](https://www.youtube.com/watch?t=1269&v=T5A58WTd3XU)

If I had a bunch of spawn points

* [21:11 - 21:14](https://www.youtube.com/watch?t=1271&v=T5A58WTd3XU)

I can click and drag each on their the name

* [21:14 - 21:16](https://www.youtube.com/watch?t=1274&v=T5A58WTd3XU)

and it will automatically add them to

* [21:16 - 21:18](https://www.youtube.com/watch?t=1276&v=T5A58WTd3XU)

'the collection', so at this point

* [21:18 - 21:22](https://www.youtube.com/watch?t=1278&v=T5A58WTd3XU)

if I run this he will start spawning Zombunnies.

* [21:23 - 21:25](https://www.youtube.com/watch?t=1283&v=T5A58WTd3XU)

So with that done

* [21:25 - 21:27](https://www.youtube.com/watch?t=1285&v=T5A58WTd3XU)

we are going to save our scene

* [21:27 - 21:30](https://www.youtube.com/watch?t=1287&v=T5A58WTd3XU)

and press play.

* [21:43 - 21:45](https://www.youtube.com/watch?t=1303&v=T5A58WTd3XU)

So we've put one in

* [21:45 - 21:47](https://www.youtube.com/watch?t=1305&v=T5A58WTd3XU)

of the EnemyManager.

* [21:47 - 21:49](https://www.youtube.com/watch?t=1307&v=T5A58WTd3XU)

We designed this script to be

* [21:49 - 21:51](https://www.youtube.com/watch?t=1309&v=T5A58WTd3XU)

modular so that you could reuse.

* [21:51 - 21:53](https://www.youtube.com/watch?t=1311&v=T5A58WTd3XU)

We could have written a script that has

* [21:53 - 21:56](https://www.youtube.com/watch?t=1313&v=T5A58WTd3XU)

arrays of different enemies and arrays for different

* [21:56 - 21:59](https://www.youtube.com/watch?t=1316&v=T5A58WTd3XU)

spawn points, we just made this nice and simple.

* [21:59 - 22:01](https://www.youtube.com/watch?t=1319&v=T5A58WTd3XU)

What that means is you can drag on more

* [22:01 - 22:03](https://www.youtube.com/watch?t=1321&v=T5A58WTd3XU)

than one copy of this script on to your

* [22:03 - 22:09](https://www.youtube.com/watch?t=1323&v=T5A58WTd3XU)

EnemyManager and assign the other game objects.

* [22:09 - 22:11](https://www.youtube.com/watch?t=1329&v=T5A58WTd3XU)

So what I'm going to do is go back to the Scripts Manager

* [22:11 - 22:13](https://www.youtube.com/watch?t=1331&v=T5A58WTd3XU)

folder and drag on a

* [22:13 - 22:15](https://www.youtube.com/watch?t=1333&v=T5A58WTd3XU)

another copy of enemy manager.

* [22:15 - 22:18](https://www.youtube.com/watch?t=1335&v=T5A58WTd3XU)

So I can just drag in to that empty space and let go.

* [22:19 - 22:25](https://www.youtube.com/watch?t=1339&v=T5A58WTd3XU)

Then as before I need to assign my Player to PlayerHealth,

* [22:26 - 22:28](https://www.youtube.com/watch?t=1346&v=T5A58WTd3XU)

and I need to assign an enemy

* [22:28 - 22:30](https://www.youtube.com/watch?t=1348&v=T5A58WTd3XU)

So this time I'm going to choose from Prefabs

* [22:31 - 22:33](https://www.youtube.com/watch?t=1351&v=T5A58WTd3XU)

Zombear.

* [22:34 - 22:37](https://www.youtube.com/watch?t=1354&v=T5A58WTd3XU)

And I'm going to drag my Zombear

* [22:37 - 22:39](https://www.youtube.com/watch?t=1357&v=T5A58WTd3XU)

spawn point and drop it on to the

* [22:39 - 22:42](https://www.youtube.com/watch?t=1359&v=T5A58WTd3XU)

Spawn Points array, which will populate it.

* [22:42 - 22:44](https://www.youtube.com/watch?t=1362&v=T5A58WTd3XU)

Finally, one more time,

* [22:44 - 22:46](https://www.youtube.com/watch?t=1364&v=T5A58WTd3XU)

Scripts Managers

* [22:46 - 22:47](https://www.youtube.com/watch?t=1366&v=T5A58WTd3XU)

Enemy Manager.

* [22:47 - 22:49](https://www.youtube.com/watch?t=1367&v=T5A58WTd3XU)

Drop it on again.

* [22:49 - 22:51](https://www.youtube.com/watch?t=1369&v=T5A58WTd3XU)

Third and final time.

* [22:51 - 22:53](https://www.youtube.com/watch?t=1371&v=T5A58WTd3XU)

And we're going to assign the Player to

* [22:53 - 22:55](https://www.youtube.com/watch?t=1373&v=T5A58WTd3XU)

get the PlayerHealth script.

* [22:55 - 22:57](https://www.youtube.com/watch?t=1375&v=T5A58WTd3XU)

We're going to go in to our Prefabs folder.

* [22:57 - 23:00](https://www.youtube.com/watch?t=1377&v=T5A58WTd3XU)

Drag and drop the Hellephant game object.

* [23:01 - 23:04](https://www.youtube.com/watch?t=1381&v=T5A58WTd3XU)

This time we'll set a different spawn time to 10.

* [23:05 - 23:08](https://www.youtube.com/watch?t=1385&v=T5A58WTd3XU)

And we're going to drag our Hellephant spawn point

* [23:08 - 23:10](https://www.youtube.com/watch?t=1388&v=T5A58WTd3XU)

on to the Spawn Points array so

* [23:10 - 23:13](https://www.youtube.com/watch?t=1390&v=T5A58WTd3XU)

I'm going to leave that open like that

* [23:18 - 23:20](https://www.youtube.com/watch?t=1398&v=T5A58WTd3XU)

So we've effectively given it

* [23:20 - 23:22](https://www.youtube.com/watch?t=1400&v=T5A58WTd3XU)

3 copies of the same script

* [23:22 - 23:25](https://www.youtube.com/watch?t=1402&v=T5A58WTd3XU)

We've assigned different enemies to spawn

* [23:25 - 23:28](https://www.youtube.com/watch?t=1405&v=T5A58WTd3XU)

and different spawn points to spawn them from.

* [23:29 - 23:32](https://www.youtube.com/watch?t=1409&v=T5A58WTd3XU)

And we can choose different spawn times, so if we want

* [23:32 - 23:34](https://www.youtube.com/watch?t=1412&v=T5A58WTd3XU)

a spawn time of 10 for the Hellephant we get

* [23:34 - 23:37](https://www.youtube.com/watch?t=1414&v=T5A58WTd3XU)

fewer of them, so it's kind of like a tank

* [23:37 - 23:39](https://www.youtube.com/watch?t=1417&v=T5A58WTd3XU)

kind of class, if you've played Left For Dead.

* [23:39 - 23:42](https://www.youtube.com/watch?t=1419&v=T5A58WTd3XU)

So go ahead and save, and play.

* [23:42 - 23:44](https://www.youtube.com/watch?t=1422&v=T5A58WTd3XU)

And you should be able to play

* [23:44 - 23:46](https://www.youtube.com/watch?t=1424&v=T5A58WTd3XU)

a 3 enemy-based game.

* [23:52 - 23:54](https://www.youtube.com/watch?t=1432&v=T5A58WTd3XU)

Remember that we put different spawn points

* [23:54 - 23:56](https://www.youtube.com/watch?t=1434&v=T5A58WTd3XU)

at different places.

* [23:56 - 23:58](https://www.youtube.com/watch?t=1436&v=T5A58WTd3XU)

The Zombunny is coming from behind

* [23:58 - 23:59](https://www.youtube.com/watch?t=1438&v=T5A58WTd3XU)

the dolls house.

* [24:00 - 24:02](https://www.youtube.com/watch?t=1440&v=T5A58WTd3XU)

The Zombear is coming out of

* [24:02 - 24:03](https://www.youtube.com/watch?t=1442&v=T5A58WTd3XU)

the mouse hole.

* [24:04 - 24:06](https://www.youtube.com/watch?t=1444&v=T5A58WTd3XU)

And the Hellephant's are coming

* [24:06 - 24:08](https://www.youtube.com/watch?t=1446&v=T5A58WTd3XU)

from behind the chest of draws

* [24:08 - 24:12](https://www.youtube.com/watch?t=1448&v=T5A58WTd3XU)

in the upper corner of the game.

* [24:15 - 24:17](https://www.youtube.com/watch?t=1455&v=T5A58WTd3XU)

And your score should be working

* [24:17 - 24:19](https://www.youtube.com/watch?t=1457&v=T5A58WTd3XU)

and if they manage to corner you

* [24:19 - 24:21](https://www.youtube.com/watch?t=1459&v=T5A58WTd3XU)

you should be loosing health.

* [24:22 - 24:24](https://www.youtube.com/watch?t=1462&v=T5A58WTd3XU)

We really should have made you lose health if

* [24:24 - 24:26](https://www.youtube.com/watch?t=1464&v=T5A58WTd3XU)

you stepped on the Legos because that hurts so much.

* [24:28 - 24:28](https://www.youtube.com/watch?t=1468&v=T5A58WTd3XU)

Yup.

* [24:29 - 24:31](https://www.youtube.com/watch?t=1469&v=T5A58WTd3XU)

So that was the end of phase 9

* [24:31 - 24:34](https://www.youtube.com/watch?t=1471&v=T5A58WTd3XU)

and we have 1 more phase to go.

# Phase 10

* Phase number 10 of 10.
* [00:07 - 00:11](https://www.youtube.com/watch?t=7&v=g57sD272Fz0)

We are going to create our game over state.

* [00:11 - 00:13](https://www.youtube.com/watch?t=11&v=g57sD272Fz0)

We are able to shoot enemies

* [00:13 - 00:15](https://www.youtube.com/watch?t=13&v=g57sD272Fz0)

and enemies are able to attack us

* [00:15 - 00:17](https://www.youtube.com/watch?t=15&v=g57sD272Fz0)

but we currently want to show the player when

* [00:17 - 00:20](https://www.youtube.com/watch?t=17&v=g57sD272Fz0)

the game has ended, apart from having you fall over.

* [00:20 - 00:22](https://www.youtube.com/watch?t=20&v=g57sD272Fz0)

So we're going to do that by

* [00:22 - 00:24](https://www.youtube.com/watch?t=22&v=g57sD272Fz0)

creating a bunch of other UI elements.

* [00:24 - 00:26](https://www.youtube.com/watch?t=24&v=g57sD272Fz0)

The first thing I'm going to do is click

* [00:26 - 00:29](https://www.youtube.com/watch?t=26&v=g57sD272Fz0)

on the 2D mode of the scene view

* [00:29 - 00:31](https://www.youtube.com/watch?t=29&v=g57sD272Fz0)

and then I'm going to double click

* [00:31 - 00:35](https://www.youtube.com/watch?t=31&v=g57sD272Fz0)

my HUD Canvas to frame selected as before.

* [00:36 - 00:39](https://www.youtube.com/watch?t=36&v=g57sD272Fz0)

Remember that that is shortcut F if you wanted to do that

* [00:39 - 00:41](https://www.youtube.com/watch?t=39&v=g57sD272Fz0)

instead you can click on any object and

* [00:41 - 00:44](https://www.youtube.com/watch?t=41&v=g57sD272Fz0)

F to frame it, I'm just zooming in to fill my screen.

* [00:45 - 00:48](https://www.youtube.com/watch?t=45&v=g57sD272Fz0)

And I'm going to right click that HUD canvas

* [00:48 - 00:50](https://www.youtube.com/watch?t=48&v=g57sD272Fz0)

and go to UI

* [00:50 - 00:52](https://www.youtube.com/watch?t=50&v=g57sD272Fz0)

and Image.

* [00:53 - 00:54](https://www.youtube.com/watch?t=53&v=g57sD272Fz0)

We're going to create an image that

* [00:54 - 00:56](https://www.youtube.com/watch?t=54&v=g57sD272Fz0)

stretches over the entire HUD Canvas,

* [00:56 - 00:58](https://www.youtube.com/watch?t=56&v=g57sD272Fz0)

the entire screen,

* [00:58 - 01:01](https://www.youtube.com/watch?t=58&v=g57sD272Fz0)

and we are going to fade it out.

* [01:01 - 01:05](https://www.youtube.com/watch?t=61&v=g57sD272Fz0)

Rename this from Image to ScreenFader.

* [01:06 - 01:10](https://www.youtube.com/watch?t=66&v=g57sD272Fz0)

ScreenFader, capital S and F.

* [01:12 - 01:15](https://www.youtube.com/watch?t=72&v=g57sD272Fz0)

Then in the rect transform

* [01:15 - 01:18](https://www.youtube.com/watch?t=75&v=g57sD272Fz0)

anchor presets click the button

* [01:18 - 01:20](https://www.youtube.com/watch?t=78&v=g57sD272Fz0)

and we're going to Alt-click

* [01:20 - 01:23](https://www.youtube.com/watch?t=80&v=g57sD272Fz0)

the lower right preset,

* [01:23 - 01:26](https://www.youtube.com/watch?t=83&v=g57sD272Fz0)

which is stretch in both dimensions.

* [01:26 - 01:28](https://www.youtube.com/watch?t=86&v=g57sD272Fz0)

That will stretch it over the entirety

* [01:28 - 01:30](https://www.youtube.com/watch?t=88&v=g57sD272Fz0)

of the canvas, and currently because

* [01:30 - 01:32](https://www.youtube.com/watch?t=90&v=g57sD272Fz0)

it is white it will just block everything out.

* [01:35 - 01:39](https://www.youtube.com/watch?t=95&v=g57sD272Fz0)

Then what we're going to do is in our Image script

* [01:39 - 01:41](https://www.youtube.com/watch?t=99&v=g57sD272Fz0)

I'm going to click on the color block

* [01:41 - 01:44](https://www.youtube.com/watch?t=101&v=g57sD272Fz0)

and I'm going to pick a shade of light blue,

* [01:44 - 01:45](https://www.youtube.com/watch?t=104&v=g57sD272Fz0)

something like this.

* [01:45 - 01:47](https://www.youtube.com/watch?t=105&v=g57sD272Fz0)

So we're not going to pick a shade of black,

* [01:47 - 01:49](https://www.youtube.com/watch?t=107&v=g57sD272Fz0)

we want to see our drop shadow on our score

* [01:49 - 01:51](https://www.youtube.com/watch?t=109&v=g57sD272Fz0)

and our game over, I'm going to pick a light blue.

* [01:53 - 01:56](https://www.youtube.com/watch?t=113&v=g57sD272Fz0)

Then we need to add our game over message.

* [01:56 - 01:59](https://www.youtube.com/watch?t=116&v=g57sD272Fz0)

So yet again reselect the HUD Canvas,

* [01:59 - 02:03](https://www.youtube.com/watch?t=119&v=g57sD272Fz0)

right click, UI Text.

* [02:04 - 02:06](https://www.youtube.com/watch?t=124&v=g57sD272Fz0)

As before it's going to create it

* [02:06 - 02:08](https://www.youtube.com/watch?t=126&v=g57sD272Fz0)

right in the centre of that.

* [02:08 - 02:11](https://www.youtube.com/watch?t=128&v=g57sD272Fz0)

We're going to rename thisGameOverText.

* [02:13 - 02:16](https://www.youtube.com/watch?t=133&v=g57sD272Fz0)

Capital G, O and T.

* [02:18 - 02:21](https://www.youtube.com/watch?t=138&v=g57sD272Fz0)

Then what we're going to do is make sure that it's

* [02:21 - 02:24](https://www.youtube.com/watch?t=141&v=g57sD272Fz0)

centred perfectly, so we're going to Alt-click

* [02:24 - 02:27](https://www.youtube.com/watch?t=144&v=g57sD272Fz0)

the centre preset, it should be centred anyway

* [02:27 - 02:29](https://www.youtube.com/watch?t=147&v=g57sD272Fz0)

but we're just making sure.

* [02:30 - 02:35](https://www.youtube.com/watch?t=150&v=g57sD272Fz0)

Then I'm going to change my width to 300

* [02:35 - 02:37](https://www.youtube.com/watch?t=155&v=g57sD272Fz0)

and a height of 50.

* [02:40 - 02:43](https://www.youtube.com/watch?t=160&v=g57sD272Fz0)

Then we're going to write in an actual message.

* [02:43 - 02:45](https://www.youtube.com/watch?t=163&v=g57sD272Fz0)

In the Text component we're going to say

* [02:45 - 02:46](https://www.youtube.com/watch?t=165&v=g57sD272Fz0)

Game Over.

* [02:46 - 02:49](https://www.youtube.com/watch?t=166&v=g57sD272Fz0)

Then we're going to say the font

* [02:49 - 02:52](https://www.youtube.com/watch?t=169&v=g57sD272Fz0)

is also our existing font, Luckiest Guy.

* [02:52 - 02:54](https://www.youtube.com/watch?t=172&v=g57sD272Fz0)

So circle select to pick the font.

* [02:55 - 02:58](https://www.youtube.com/watch?t=175&v=g57sD272Fz0)

And the font size, we're going to go with 50.

* [02:59 - 03:01](https://www.youtube.com/watch?t=179&v=g57sD272Fz0)

The alignments are going to be

* [03:01 - 03:04](https://www.youtube.com/watch?t=181&v=g57sD272Fz0)

centre and middle, under Paragraph.

* [03:06 - 03:08](https://www.youtube.com/watch?t=186&v=g57sD272Fz0)

And I'm going to scroll down and choose

* [03:08 - 03:11](https://www.youtube.com/watch?t=188&v=g57sD272Fz0)

white from the color picker, just like before.

* [03:13 - 03:15](https://www.youtube.com/watch?t=193&v=g57sD272Fz0)

And as before we need a drop shadow

* [03:15 - 03:18](https://www.youtube.com/watch?t=195&v=g57sD272Fz0)

so we're going to Add Component, so I'll type in

* [03:18 - 03:22](https://www.youtube.com/watch?t=198&v=g57sD272Fz0)

S-H-A, press Return to add the Shadow script.

* [03:24 - 03:26](https://www.youtube.com/watch?t=204&v=g57sD272Fz0)

Yet again I'm going to put in 2

* [03:26 - 03:29](https://www.youtube.com/watch?t=206&v=g57sD272Fz0)

and -2 just to accentuate the effect a little bit.

* [03:30 - 03:34](https://www.youtube.com/watch?t=210&v=g57sD272Fz0)

Then, very importantly we need to reorder

* [03:34 - 03:35](https://www.youtube.com/watch?t=214&v=g57sD272Fz0)

how these are arranged.

* [03:35 - 03:38](https://www.youtube.com/watch?t=215&v=g57sD272Fz0)

This is a really important thing to learn about the new UI system.

* [03:38 - 03:41](https://www.youtube.com/watch?t=218&v=g57sD272Fz0)

What you may have noticed as of Unity 4.5

* [03:41 - 03:43](https://www.youtube.com/watch?t=221&v=g57sD272Fz0)

and now in Unity 4.6

* [03:43 - 03:47](https://www.youtube.com/watch?t=223&v=g57sD272Fz0)

the hierarchy doesn't show in A to Z order.

* [03:47 - 03:51](https://www.youtube.com/watch?t=227&v=g57sD272Fz0)

You'll notice that things that are H is below a Z.

* [03:51 - 03:53](https://www.youtube.com/watch?t=231&v=g57sD272Fz0)

The reason for that is the UI

* [03:53 - 03:56](https://www.youtube.com/watch?t=233&v=g57sD272Fz0)

system needs to use the hierarchy

* [03:56 - 03:58](https://www.youtube.com/watch?t=236&v=g57sD272Fz0)

to order it's render order.

* [03:59 - 04:01](https://www.youtube.com/watch?t=239&v=g57sD272Fz0)

The way that this works, if you're used to Photoshop,

* [04:01 - 04:04](https://www.youtube.com/watch?t=241&v=g57sD272Fz0)

you have to think backwards.

* [04:04 - 04:08](https://www.youtube.com/watch?t=244&v=g57sD272Fz0)

The lower most child object

* [04:08 - 04:10](https://www.youtube.com/watch?t=248&v=g57sD272Fz0)

is rendered in front of everything else.

* [04:11 - 04:13](https://www.youtube.com/watch?t=251&v=g57sD272Fz0)

So currently we have

* [04:13 - 04:16](https://www.youtube.com/watch?t=253&v=g57sD272Fz0)

DamageImage at the bottom followed by

* [04:16 - 04:18](https://www.youtube.com/watch?t=256&v=g57sD272Fz0)

HealthUI rendered on top of that,

* [04:18 - 04:22](https://www.youtube.com/watch?t=258&v=g57sD272Fz0)

followed by ScoreText, ScreenFader then GameOverText.

* [04:22 - 04:25](https://www.youtube.com/watch?t=262&v=g57sD272Fz0)

However, we don't want it in that order.

* [04:25 - 04:27](https://www.youtube.com/watch?t=265&v=g57sD272Fz0)

We want our HealthUI to be at the bottom

* [04:27 - 04:29](https://www.youtube.com/watch?t=267&v=g57sD272Fz0)

so that when we fade in this blue screen

* [04:29 - 04:33](https://www.youtube.com/watch?t=269&v=g57sD272Fz0)

it obscures or renders in front of that HealthUI.

* [04:33 - 04:35](https://www.youtube.com/watch?t=273&v=g57sD272Fz0)

You don't need to know that you had no health

* [04:35 - 04:38](https://www.youtube.com/watch?t=275&v=g57sD272Fz0)

left when you died because that's pretty obvious,

* [04:38 - 04:40](https://www.youtube.com/watch?t=278&v=g57sD272Fz0)

that's why you died.

* [04:40 - 04:43](https://www.youtube.com/watch?t=280&v=g57sD272Fz0)

So we're going to drag and drop these to reorder.

* [04:43 - 04:45](https://www.youtube.com/watch?t=283&v=g57sD272Fz0)

You need to be careful with this and

* [04:45 - 04:48](https://www.youtube.com/watch?t=285&v=g57sD272Fz0)

just watch me do it first because it can be a bit clunky.

* [04:48 - 04:51](https://www.youtube.com/watch?t=288&v=g57sD272Fz0)

What I want you to do is just watch for a second.

* [04:52 - 04:54](https://www.youtube.com/watch?t=292&v=g57sD272Fz0)

What I'm going to do is move my healthUI

* [04:54 - 04:56](https://www.youtube.com/watch?t=294&v=g57sD272Fz0)

to above, so I don't want to

* [04:56 - 04:59](https://www.youtube.com/watch?t=296&v=g57sD272Fz0)

accidentally drop on to something else, like this,

* [04:59 - 05:01](https://www.youtube.com/watch?t=299&v=g57sD272Fz0)

I want to drop it so that it has the line

* [05:01 - 05:04](https://www.youtube.com/watch?t=301&v=g57sD272Fz0)

and the small circle and drop it above.

* [05:04 - 05:07](https://www.youtube.com/watch?t=304&v=g57sD272Fz0)

I'll slowly get these in to the right order.

* [05:07 - 05:09](https://www.youtube.com/watch?t=307&v=g57sD272Fz0)

With the ScreenFader, that needs to be the

* [05:09 - 05:12](https://www.youtube.com/watch?t=309&v=g57sD272Fz0)

third thing, so I'll drag that between these two

* [05:12 - 05:13](https://www.youtube.com/watch?t=312&v=g57sD272Fz0)

so the line shows up.

* [05:13 - 05:18](https://www.youtube.com/watch?t=313&v=g57sD272Fz0)

And then GameOverText, and ScoreText at the end.

* [05:18 - 05:21](https://www.youtube.com/watch?t=318&v=g57sD272Fz0)

The HealthUI will render first,

* [05:21 - 05:22](https://www.youtube.com/watch?t=321&v=g57sD272Fz0)

and the DamageImage is next.

* [05:22 - 05:26](https://www.youtube.com/watch?t=322&v=g57sD272Fz0)

That's intermittently happening so it doesn't matter too much.

* [05:26 - 05:28](https://www.youtube.com/watch?t=326&v=g57sD272Fz0)

The ScreenFader needs to obscure both

* [05:28 - 05:30](https://www.youtube.com/watch?t=328&v=g57sD272Fz0)

of those by fading in and we'll finish

* [05:30 - 05:32](https://www.youtube.com/watch?t=330&v=g57sD272Fz0)

the game with GameOverText and ScoreText

* [05:32 - 05:35](https://www.youtube.com/watch?t=332&v=g57sD272Fz0)

still showing on top of that blue screen.

* [05:35 - 05:36](https://www.youtube.com/watch?t=335&v=g57sD272Fz0)

So we've sorted that render order.

* [05:36 - 05:38](https://www.youtube.com/watch?t=336&v=g57sD272Fz0)

Just to remind you of the render order,

* [05:39 - 05:40](https://www.youtube.com/watch?t=339&v=g57sD272Fz0)

this is what it is;

* [05:40 - 05:42](https://www.youtube.com/watch?t=340&v=g57sD272Fz0)

Health UI first, then DamageImage,

* [05:42 - 05:44](https://www.youtube.com/watch?t=342&v=g57sD272Fz0)

ScreenFader, GameOverText,

* [05:44 - 05:47](https://www.youtube.com/watch?t=344&v=g57sD272Fz0)

going own the list so that the render order

* [05:47 - 05:49](https://www.youtube.com/watch?t=347&v=g57sD272Fz0)

ends with ScoreText.

* [05:50 - 05:54](https://www.youtube.com/watch?t=350&v=g57sD272Fz0)

The ScreenFader hierarchy by default needs to be

* [05:54 - 05:55](https://www.youtube.com/watch?t=354&v=g57sD272Fz0)

transparent, we don't want to start the game

* [05:55 - 05:57](https://www.youtube.com/watch?t=355&v=g57sD272Fz0)

with this blue obscuring everything.

* [05:58 - 06:00](https://www.youtube.com/watch?t=358&v=g57sD272Fz0)

I'm just going to save my scene.

* [06:00 - 06:02](https://www.youtube.com/watch?t=360&v=g57sD272Fz0)

And then with my ScreenFader

* [06:02 - 06:05](https://www.youtube.com/watch?t=362&v=g57sD272Fz0)

reselected in the hierarchy I'm going to

* [06:05 - 06:06](https://www.youtube.com/watch?t=365&v=g57sD272Fz0)

click on the color block

* [06:08 - 06:10](https://www.youtube.com/watch?t=368&v=g57sD272Fz0)

and you'll see sliders at the bottom

* [06:10 - 06:12](https://www.youtube.com/watch?t=370&v=g57sD272Fz0)

RGB, Red, Green, Blue

* [06:12 - 06:13](https://www.youtube.com/watch?t=372&v=g57sD272Fz0)

and A for Alpha.

* [06:13 - 06:15](https://www.youtube.com/watch?t=373&v=g57sD272Fz0)

So that's how you do transparent things,

* [06:15 - 06:18](https://www.youtube.com/watch?t=375&v=g57sD272Fz0)

you drag the Alpha to 0.

* [06:20 - 06:23](https://www.youtube.com/watch?t=380&v=g57sD272Fz0)

Then the same thing for the GameOverText.

* [06:24 - 06:26](https://www.youtube.com/watch?t=384&v=g57sD272Fz0)

Select GameOverText and in

* [06:26 - 06:30](https://www.youtube.com/watch?t=386&v=g57sD272Fz0)

the Color for the text component, open the block,

* [06:30 - 06:33](https://www.youtube.com/watch?t=390&v=g57sD272Fz0)

set the Alpha to 0.

* [06:33 - 06:35](https://www.youtube.com/watch?t=393&v=g57sD272Fz0)

Drag the slider down to 0.

* [06:37 - 06:39](https://www.youtube.com/watch?t=397&v=g57sD272Fz0)

So at the start of the game these are

* [06:39 - 06:42](https://www.youtube.com/watch?t=399&v=g57sD272Fz0)

there and we're going to use animation in just a second

* [06:42 - 06:44](https://www.youtube.com/watch?t=402&v=g57sD272Fz0)

to animate those in, make them look cool,

* [06:44 - 06:46](https://www.youtube.com/watch?t=404&v=g57sD272Fz0)

and we're going to create a state machine for

* [06:46 - 06:47](https://www.youtube.com/watch?t=406&v=g57sD272Fz0)

when the game ends.

* [06:48 - 06:50](https://www.youtube.com/watch?t=408&v=g57sD272Fz0)

Because we previously used

* [06:50 - 06:53](https://www.youtube.com/watch?t=410&v=g57sD272Fz0)

pre-animated FPX files

* [06:53 - 06:55](https://www.youtube.com/watch?t=413&v=g57sD272Fz0)

they came with an animator component

* [06:55 - 06:57](https://www.youtube.com/watch?t=415&v=g57sD272Fz0)

already attached to them.

* [06:57 - 06:59](https://www.youtube.com/watch?t=417&v=g57sD272Fz0)

We just needed to create the controller,

* [06:59 - 07:01](https://www.youtube.com/watch?t=419&v=g57sD272Fz0)

the state machine, to apply to it.

* [07:01 - 07:04](https://www.youtube.com/watch?t=421&v=g57sD272Fz0)

But you can use the animator with anything.

* [07:04 - 07:07](https://www.youtube.com/watch?t=424&v=g57sD272Fz0)

A lot of people get confused because

* [07:07 - 07:09](https://www.youtube.com/watch?t=427&v=g57sD272Fz0)

when we added the new animation system

* [07:09 - 07:11](https://www.youtube.com/watch?t=429&v=g57sD272Fz0)

it has a nickname, which is MeshAnim.

* [07:12 - 07:14](https://www.youtube.com/watch?t=432&v=g57sD272Fz0)

And a lot of people think that that is only

* [07:14 - 07:16](https://www.youtube.com/watch?t=434&v=g57sD272Fz0)

useable for character animation.

* [07:16 - 07:18](https://www.youtube.com/watch?t=436&v=g57sD272Fz0)

It's not true at all, you can animate

* [07:18 - 07:19](https://www.youtube.com/watch?t=438&v=g57sD272Fz0)

anything you want to, it's just a

* [07:19 - 07:22](https://www.youtube.com/watch?t=439&v=g57sD272Fz0)

state machine you can apply animation clips to.

* [07:22 - 07:25](https://www.youtube.com/watch?t=442&v=g57sD272Fz0)

So we're going to do exactly that with our UI right now.

* [07:25 - 07:28](https://www.youtube.com/watch?t=445&v=g57sD272Fz0)

Even the term animation is a bit misleading because

* [07:28 - 07:30](https://www.youtube.com/watch?t=448&v=g57sD272Fz0)

it makes you think that some form of motion is involved

* [07:30 - 07:32](https://www.youtube.com/watch?t=450&v=g57sD272Fz0)

and in fact animation in this case

* [07:32 - 07:35](https://www.youtube.com/watch?t=452&v=g57sD272Fz0)

can literally be the changing of anything,

* [07:35 - 07:38](https://www.youtube.com/watch?t=455&v=g57sD272Fz0)

positional information such as movement but also

* [07:38 - 07:42](https://www.youtube.com/watch?t=458&v=g57sD272Fz0)

colors, alphas, values, turning things on and off.

* [07:42 - 07:43](https://www.youtube.com/watch?t=462&v=g57sD272Fz0)

Literally anything you want.

* [07:43 - 07:46](https://www.youtube.com/watch?t=463&v=g57sD272Fz0)

So you can animate any public property of

* [07:46 - 07:49](https://www.youtube.com/watch?t=466&v=g57sD272Fz0)

any component on any game object in Unity.

* [07:50 - 07:52](https://www.youtube.com/watch?t=470&v=g57sD272Fz0)

We're going to do that with the UI

* [07:52 - 07:55](https://www.youtube.com/watch?t=472&v=g57sD272Fz0)

right now to give you an example of that.

* [07:55 - 07:57](https://www.youtube.com/watch?t=475&v=g57sD272Fz0)

Because when we start adding

* [07:57 - 07:59](https://www.youtube.com/watch?t=477&v=g57sD272Fz0)

animation Unity's going to automatically

* [07:59 - 08:03](https://www.youtube.com/watch?t=479&v=g57sD272Fz0)

assign the animator, I.E. the holder for state machine.

* [08:03 - 08:05](https://www.youtube.com/watch?t=483&v=g57sD272Fz0)

We need to select the right object, so we're going to choose

* [08:05 - 08:08](https://www.youtube.com/watch?t=485&v=g57sD272Fz0)

the HUD Canvas as the one we're going to

* [08:08 - 08:10](https://www.youtube.com/watch?t=488&v=g57sD272Fz0)

start adding animation to.

* [08:10 - 08:12](https://www.youtube.com/watch?t=490&v=g57sD272Fz0)

That way when we add one clip

* [08:12 - 08:14](https://www.youtube.com/watch?t=492&v=g57sD272Fz0)

we'll be able to address any property of

* [08:14 - 08:16](https://www.youtube.com/watch?t=494&v=g57sD272Fz0)

any of the child objects.

* [08:16 - 08:17](https://www.youtube.com/watch?t=496&v=g57sD272Fz0)

That's really important.

* [08:17 - 08:20](https://www.youtube.com/watch?t=497&v=g57sD272Fz0)

With the HUD Canvas selected

* [08:20 - 08:22](https://www.youtube.com/watch?t=500&v=g57sD272Fz0)

I want you to go to Window

* [08:22 - 08:23](https://www.youtube.com/watch?t=502&v=g57sD272Fz0)

Animation.

* [08:24 - 08:27](https://www.youtube.com/watch?t=504&v=g57sD272Fz0)

Window - Animation, not the animator,

* [08:27 - 08:30](https://www.youtube.com/watch?t=507&v=g57sD272Fz0)

the actual timeline, it should look like this.

* [08:30 - 08:32](https://www.youtube.com/watch?t=510&v=g57sD272Fz0)

And I'm going to drag this tab and

* [08:32 - 08:34](https://www.youtube.com/watch?t=512&v=g57sD272Fz0)

dock it by the game view,

* [08:34 - 08:36](https://www.youtube.com/watch?t=514&v=g57sD272Fz0)

because when you're animating you're mostly going to look

* [08:36 - 08:38](https://www.youtube.com/watch?t=516&v=g57sD272Fz0)

at the scene view and you don't really need to worry

* [08:38 - 08:41](https://www.youtube.com/watch?t=518&v=g57sD272Fz0)

about the game view so I'm going to dock that in the same place.

* [08:43 - 08:45](https://www.youtube.com/watch?t=523&v=g57sD272Fz0)

Then if I don't already have a

* [08:45 - 08:47](https://www.youtube.com/watch?t=525&v=g57sD272Fz0)

clip made as soon as I add a curve,

* [08:47 - 08:49](https://www.youtube.com/watch?t=527&v=g57sD272Fz0)

adding curves basically means add

* [08:49 - 08:51](https://www.youtube.com/watch?t=529&v=g57sD272Fz0)

property that I want to animate of

* [08:51 - 08:53](https://www.youtube.com/watch?t=531&v=g57sD272Fz0)

anything that's attached to the game object

* [08:53 - 08:55](https://www.youtube.com/watch?t=533&v=g57sD272Fz0)

currently selected.

* [08:55 - 08:57](https://www.youtube.com/watch?t=535&v=g57sD272Fz0)

I click Add Curve and you need to

* [08:57 - 09:00](https://www.youtube.com/watch?t=537&v=g57sD272Fz0)

decide 'whoa, you don't have an animation yet'.

* [09:03 - 09:06](https://www.youtube.com/watch?t=543&v=g57sD272Fz0)

So it pops up a Create New Animation box.

* [09:07 - 09:09](https://www.youtube.com/watch?t=547&v=g57sD272Fz0)

Because we've made that animation folder before

* [09:09 - 09:11](https://www.youtube.com/watch?t=549&v=g57sD272Fz0)

we started I'm going to select that as the

* [09:11 - 09:13](https://www.youtube.com/watch?t=551&v=g57sD272Fz0)

place to put it

* [09:13 - 09:15](https://www.youtube.com/watch?t=553&v=g57sD272Fz0)

and I'm going to name my new clip

* [09:15 - 09:16](https://www.youtube.com/watch?t=555&v=g57sD272Fz0)

GameOverClip.

* [09:17 - 09:19](https://www.youtube.com/watch?t=557&v=g57sD272Fz0)

Like that. Press Save.

* [09:20 - 09:22](https://www.youtube.com/watch?t=560&v=g57sD272Fz0)

So now you'll see that the

* [09:22 - 09:24](https://www.youtube.com/watch?t=562&v=g57sD272Fz0)

animation window is in Record Mode,

* [09:24 - 09:26](https://www.youtube.com/watch?t=564&v=g57sD272Fz0)

the Record Mode button is highlighted

* [09:26 - 09:29](https://www.youtube.com/watch?t=566&v=g57sD272Fz0)

and it's asking us which property

* [09:29 - 09:31](https://www.youtube.com/watch?t=569&v=g57sD272Fz0)

we'd like to animate.

* [09:31 - 09:33](https://www.youtube.com/watch?t=571&v=g57sD272Fz0)

It's worth noting that it is in fact

* [09:33 - 09:36](https://www.youtube.com/watch?t=573&v=g57sD272Fz0)

in record mode so anything you do in the scene view

* [09:36 - 09:39](https://www.youtube.com/watch?t=576&v=g57sD272Fz0)

or the inspector is going to get recorded.

* [09:39 - 09:41](https://www.youtube.com/watch?t=579&v=g57sD272Fz0)

And you need to be careful exactly the things you touch.

* [09:41 - 09:44](https://www.youtube.com/watch?t=581&v=g57sD272Fz0)

A really quick and easy way to know if you're in record mode

* [09:44 - 09:47](https://www.youtube.com/watch?t=584&v=g57sD272Fz0)

is you see the player icons at the top are red?

* [09:47 - 09:49](https://www.youtube.com/watch?t=587&v=g57sD272Fz0)

That means you are in record mode.

* [09:50 - 09:53](https://www.youtube.com/watch?t=590&v=g57sD272Fz0)

Which means anything you're doing right now is being recorded.

* [09:53 - 09:55](https://www.youtube.com/watch?t=593&v=g57sD272Fz0)

If you change stuff it's going to think you intended

* [09:55 - 09:56](https://www.youtube.com/watch?t=595&v=g57sD272Fz0)

for that to be part of the animation.

* [09:56 - 09:58](https://www.youtube.com/watch?t=596&v=g57sD272Fz0)

There's a couple of different ways to work with this window.

* [09:58 - 10:00](https://www.youtube.com/watch?t=598&v=g57sD272Fz0)

We're going to work in a very specific way,

* [10:00 - 10:02](https://www.youtube.com/watch?t=600&v=g57sD272Fz0)

but there's a more freestyle way where you can

* [10:02 - 10:05](https://www.youtube.com/watch?t=602&v=g57sD272Fz0)

move the playhead along, change a property

* [10:06 - 10:08](https://www.youtube.com/watch?t=606&v=g57sD272Fz0)

and then it's going to get recorded straight in to your animation.

* [10:08 - 10:10](https://www.youtube.com/watch?t=608&v=g57sD272Fz0)

We'll do a little bit of that and we'll do

* [10:10 - 10:12](https://www.youtube.com/watch?t=610&v=g57sD272Fz0)

a bit of filling it in manually.

* [10:12 - 10:14](https://www.youtube.com/watch?t=612&v=g57sD272Fz0)

Like I said adding curve is choosing

* [10:14 - 10:16](https://www.youtube.com/watch?t=614&v=g57sD272Fz0)

a property that you want to animate.

* [10:18 - 10:20](https://www.youtube.com/watch?t=618&v=g57sD272Fz0)

The list here shows me first of all

* [10:20 - 10:23](https://www.youtube.com/watch?t=620&v=g57sD272Fz0)

the components attached to the game object we are animating.

* [10:23 - 10:25](https://www.youtube.com/watch?t=623&v=g57sD272Fz0)

So there's a rect transform, there's a canvas,

* [10:25 - 10:28](https://www.youtube.com/watch?t=625&v=g57sD272Fz0)

there's the graphic raycast of the canvas group,

* [10:28 - 10:31](https://www.youtube.com/watch?t=628&v=g57sD272Fz0)

and now it's added also an animator component because

* [10:31 - 10:32](https://www.youtube.com/watch?t=631&v=g57sD272Fz0)

we're going to drive this with a state machine

* [10:32 - 10:36](https://www.youtube.com/watch?t=632&v=g57sD272Fz0)

Unity knows that's the way it needs to work so it's added it for us.

* [10:36 - 10:39](https://www.youtube.com/watch?t=636&v=g57sD272Fz0)

It also very helpfully created

* [10:40 - 10:42](https://www.youtube.com/watch?t=640&v=g57sD272Fz0)

an animator controller asset for it

* [10:42 - 10:44](https://www.youtube.com/watch?t=642&v=g57sD272Fz0)

and assigned it for us as well.

* [10:48 - 10:51](https://www.youtube.com/watch?t=648&v=g57sD272Fz0)

So now we also get

* [10:51 - 10:53](https://www.youtube.com/watch?t=651&v=g57sD272Fz0)

the child objects, so all of these things that are attached

* [10:53 - 10:55](https://www.youtube.com/watch?t=653&v=g57sD272Fz0)

to HUD Canvas are also animatable.

* [10:56 - 10:58](https://www.youtube.com/watch?t=656&v=g57sD272Fz0)

So what we're going to do is add

* [10:58 - 11:00](https://www.youtube.com/watch?t=658&v=g57sD272Fz0)

a number of properties that we want to animate.

* [11:00 - 11:03](https://www.youtube.com/watch?t=660&v=g57sD272Fz0)

The first one we want to animate is the GameOverText.

* [11:03 - 11:05](https://www.youtube.com/watch?t=663&v=g57sD272Fz0)

We want to make that fade in.

* [11:05 - 11:08](https://www.youtube.com/watch?t=665&v=g57sD272Fz0)

So if you expand GameOverText

* [11:08 - 11:12](https://www.youtube.com/watch?t=668&v=g57sD272Fz0)

and then expand the text component

* [11:12 - 11:15](https://www.youtube.com/watch?t=672&v=g57sD272Fz0)

and click the + icon for color,

* [11:15 - 11:17](https://www.youtube.com/watch?t=675&v=g57sD272Fz0)

you can see Color here,

* [11:17 - 11:20](https://www.youtube.com/watch?t=677&v=g57sD272Fz0)

click the + icon and you will get

* [11:20 - 11:24](https://www.youtube.com/watch?t=680&v=g57sD272Fz0)

some keyframes added in at 0 and at 1 second.

* [11:27 - 11:28](https://www.youtube.com/watch?t=687&v=g57sD272Fz0)

And you also get

* [11:29 - 11:32](https://www.youtube.com/watch?t=689&v=g57sD272Fz0)

the properties of that particular thing.

* [11:32 - 11:34](https://www.youtube.com/watch?t=692&v=g57sD272Fz0)

So next I'm going to add another curve.

* [11:35 - 11:40](https://www.youtube.com/watch?t=695&v=g57sD272Fz0)

I'm going to go to GameOverText Rect Transform

* [11:40 - 11:42](https://www.youtube.com/watch?t=700&v=g57sD272Fz0)

and Scale.

* [11:43 - 11:45](https://www.youtube.com/watch?t=703&v=g57sD272Fz0)

Add a property for that.

* [11:46 - 11:51](https://www.youtube.com/watch?t=706&v=g57sD272Fz0)

Then ScreenFader - Image - Color,

* [11:51 - 11:52](https://www.youtube.com/watch?t=711&v=g57sD272Fz0)

so these are all things we want to animate.

* [11:52 - 11:55](https://www.youtube.com/watch?t=712&v=g57sD272Fz0)

Remember we're animating in the alpha of the ScreenFader.

* [11:55 - 11:57](https://www.youtube.com/watch?t=715&v=g57sD272Fz0)

We're going to animate the fading of the

* [11:57 - 11:59](https://www.youtube.com/watch?t=717&v=g57sD272Fz0)

word Game Over on the text.

* [11:59 - 12:00](https://www.youtube.com/watch?t=719&v=g57sD272Fz0)

And we're also going to scale it,

* [12:00 - 12:02](https://www.youtube.com/watch?t=720&v=g57sD272Fz0)

we're going to make it bounce when it comes in,

* [12:02 - 12:04](https://www.youtube.com/watch?t=722&v=g57sD272Fz0)

so we're going to use Scale for that.

* [12:05 - 12:07](https://www.youtube.com/watch?t=725&v=g57sD272Fz0)

Finally ScoreText, we're just going to shrink

* [12:07 - 12:09](https://www.youtube.com/watch?t=727&v=g57sD272Fz0)

down a little bit when the game is over,

* [12:09 - 12:11](https://www.youtube.com/watch?t=729&v=g57sD272Fz0)

we're going to add one more curve,

* [12:11 - 12:14](https://www.youtube.com/watch?t=731&v=g57sD272Fz0)

ScoreText - Rect Transform - Scale.

* [12:17 - 12:19](https://www.youtube.com/watch?t=737&v=g57sD272Fz0)

And the last thing I'm going to do

* [12:19 - 12:22](https://www.youtube.com/watch?t=739&v=g57sD272Fz0)

is to select the top most keyframe of

* [12:22 - 12:23](https://www.youtube.com/watch?t=742&v=g57sD272Fz0)

the end keyframes.

* [12:23 - 12:26](https://www.youtube.com/watch?t=743&v=g57sD272Fz0)

So what you can see is there's an empty row

* [12:26 - 12:28](https://www.youtube.com/watch?t=746&v=g57sD272Fz0)

in your list of curves.

* [12:28 - 12:31](https://www.youtube.com/watch?t=748&v=g57sD272Fz0)

Now what that does is it allows you to

* [12:31 - 12:33](https://www.youtube.com/watch?t=751&v=g57sD272Fz0)

grab all of them that are in line.

* [12:33 - 12:35](https://www.youtube.com/watch?t=753&v=g57sD272Fz0)

So I can click on my top keyframe, here,

* [12:36 - 12:40](https://www.youtube.com/watch?t=756&v=g57sD272Fz0)

I can drag this back to frame 30 and let go.

* [12:40 - 12:42](https://www.youtube.com/watch?t=760&v=g57sD272Fz0)

That will shorten the entire animation.

* [12:42 - 12:44](https://www.youtube.com/watch?t=762&v=g57sD272Fz0)

So I'm grabbing this top one and it's pulling

* [12:44 - 12:48](https://www.youtube.com/watch?t=764&v=g57sD272Fz0)

all of the end keyframes for my animation

* [12:48 - 12:50](https://www.youtube.com/watch?t=768&v=g57sD272Fz0)

to frame 30.

* [12:50 - 12:53](https://www.youtube.com/watch?t=770&v=g57sD272Fz0)

So now we're going to actually start animating.

* [12:53 - 12:55](https://www.youtube.com/watch?t=773&v=g57sD272Fz0)

When you move your mouse over

* [12:55 - 12:58](https://www.youtube.com/watch?t=775&v=g57sD272Fz0)

this timeline here where I'm moving my mouse now,

* [12:58 - 13:00](https://www.youtube.com/watch?t=778&v=g57sD272Fz0)

you can drag around and you'll see the red line

* [13:00 - 13:02](https://www.youtube.com/watch?t=780&v=g57sD272Fz0)

and that's the playhead moving around.

* [13:03 - 13:05](https://www.youtube.com/watch?t=783&v=g57sD272Fz0)

I'm going to move to frame 20.

* [13:05 - 13:08](https://www.youtube.com/watch?t=785&v=g57sD272Fz0)

You can see here that the number that you're

* [13:08 - 13:10](https://www.youtube.com/watch?t=788&v=g57sD272Fz0)

currently on is represented.

* [13:10 - 13:12](https://www.youtube.com/watch?t=790&v=g57sD272Fz0)

So if I want to move to frame 20 I can drag

* [13:12 - 13:14](https://www.youtube.com/watch?t=792&v=g57sD272Fz0)

or I can type in here frame 20.

* [13:14 - 13:17](https://www.youtube.com/watch?t=794&v=g57sD272Fz0)

And then I want to create a keyframe

* [13:17 - 13:20](https://www.youtube.com/watch?t=797&v=g57sD272Fz0)

for the GameOverText Scale.

* [13:20 - 13:23](https://www.youtube.com/watch?t=800&v=g57sD272Fz0)

So I'm going to drag this divider so that I can see

* [13:23 - 13:24](https://www.youtube.com/watch?t=803&v=g57sD272Fz0)

the end of that property.

* [13:24 - 13:27](https://www.youtube.com/watch?t=804&v=g57sD272Fz0)

So the line between the list of curves

* [13:27 - 13:30](https://www.youtube.com/watch?t=807&v=g57sD272Fz0)

and the timeline itself can be dragged

* [13:30 - 13:31](https://www.youtube.com/watch?t=810&v=g57sD272Fz0)

to expand it.

* [13:31 - 13:35](https://www.youtube.com/watch?t=811&v=g57sD272Fz0)

GameOverText Rect Transform Scale is the first one.

* [13:35 - 13:39](https://www.youtube.com/watch?t=815&v=g57sD272Fz0)

I select the property so it's highlighted in blue,

* [13:39 - 13:41](https://www.youtube.com/watch?t=819&v=g57sD272Fz0)

and I press K to make a new keyframe,

* [13:41 - 13:43](https://www.youtube.com/watch?t=821&v=g57sD272Fz0)

or I can use this button here,

* [13:43 - 13:45](https://www.youtube.com/watch?t=823&v=g57sD272Fz0)

to add a keyframe as well.

* [13:45 - 13:48](https://www.youtube.com/watch?t=825&v=g57sD272Fz0)

You can also just double click in that row.

* [13:48 - 13:51](https://www.youtube.com/watch?t=828&v=g57sD272Fz0)

Okay, so, once I've done that

* [13:51 - 13:54](https://www.youtube.com/watch?t=831&v=g57sD272Fz0)

I can move to frame 0

* [13:55 - 13:58](https://www.youtube.com/watch?t=835&v=g57sD272Fz0)

and expand this.

* [13:58 - 14:01](https://www.youtube.com/watch?t=838&v=g57sD272Fz0)

And what you'll see is that I've got 1, 1, 1.

* [14:01 - 14:04](https://www.youtube.com/watch?t=841&v=g57sD272Fz0)

So when we start off the scale is all at 1.

* [14:05 - 14:07](https://www.youtube.com/watch?t=845&v=g57sD272Fz0)

But we want it to increase

* [14:07 - 14:09](https://www.youtube.com/watch?t=847&v=g57sD272Fz0)

from 0 scale and bounce up

* [14:09 - 14:11](https://www.youtube.com/watch?t=849&v=g57sD272Fz0)

and then shrink back down.

* [14:11 - 14:14](https://www.youtube.com/watch?t=851&v=g57sD272Fz0)

So drag the playhead back to 0.

* [14:14 - 14:17](https://www.youtube.com/watch?t=854&v=g57sD272Fz0)

Then I'm going to enter in 0, 0, 0,

* [14:18 - 14:21](https://www.youtube.com/watch?t=858&v=g57sD272Fz0)

in the Scale property, so if you expand

* [14:21 - 14:24](https://www.youtube.com/watch?t=861&v=g57sD272Fz0)

GameOverText Rect Transform Scale

* [14:24 - 14:26](https://www.youtube.com/watch?t=864&v=g57sD272Fz0)

you can click on those boxes and type in 0

* [14:26 - 14:28](https://www.youtube.com/watch?t=866&v=g57sD272Fz0)

and hit return.

* [14:29 - 14:31](https://www.youtube.com/watch?t=869&v=g57sD272Fz0)

What you'll notice if you then drag

* [14:31 - 14:36](https://www.youtube.com/watch?t=871&v=g57sD272Fz0)

the playhead is that that rect transform is increasing.

* [14:36 - 14:38](https://www.youtube.com/watch?t=876&v=g57sD272Fz0)

We haven't animated the alpha yet but you can

* [14:38 - 14:40](https://www.youtube.com/watch?t=878&v=g57sD272Fz0)

see the rect of the box is popping up

* [14:40 - 14:42](https://www.youtube.com/watch?t=880&v=g57sD272Fz0)

as I drag over those.

* [14:43 - 14:45](https://www.youtube.com/watch?t=883&v=g57sD272Fz0)

What I want you to notice as well is that

* [14:45 - 14:47](https://www.youtube.com/watch?t=885&v=g57sD272Fz0)

we can also address this

* [14:47 - 14:49](https://www.youtube.com/watch?t=887&v=g57sD272Fz0)

using the inspector.

* [14:49 - 14:52](https://www.youtube.com/watch?t=889&v=g57sD272Fz0)

So the GameOverText Rect Transform Scale,

* [14:52 - 14:54](https://www.youtube.com/watch?t=892&v=g57sD272Fz0)

with that selected I could also use the inspector

* [14:54 - 14:57](https://www.youtube.com/watch?t=894&v=g57sD272Fz0)

so when we're in record mode anything

* [14:57 - 14:59](https://www.youtube.com/watch?t=897&v=g57sD272Fz0)

that's setup for animation, anything we've

* [14:59 - 15:00](https://www.youtube.com/watch?t=899&v=g57sD272Fz0)

added as a curve in the list

* [15:01 - 15:02](https://www.youtube.com/watch?t=901&v=g57sD272Fz0)

is highlighted in red.

* [15:03 - 15:07](https://www.youtube.com/watch?t=903&v=g57sD272Fz0)

So you can see that change as I drag in the inspector.

* [15:08 - 15:10](https://www.youtube.com/watch?t=908&v=g57sD272Fz0)

The next thing we're going to do is go to that

* [15:10 - 15:12](https://www.youtube.com/watch?t=910&v=g57sD272Fz0)

frame 20 where we've added that new keyframe.

* [15:13 - 15:15](https://www.youtube.com/watch?t=913&v=g57sD272Fz0)

And because we're in record mode I can

* [15:15 - 15:20](https://www.youtube.com/watch?t=915&v=g57sD272Fz0)

go to the inspector and type 1.2 for all axis.

* [15:20 - 15:23](https://www.youtube.com/watch?t=920&v=g57sD272Fz0)

1.2 for the scale of all of those.

* [15:24 - 15:26](https://www.youtube.com/watch?t=924&v=g57sD272Fz0)

So where it's red and says 1,

* [15:26 - 15:28](https://www.youtube.com/watch?t=926&v=g57sD272Fz0)

replace that with 1.2.

* [15:29 - 15:31](https://www.youtube.com/watch?t=929&v=g57sD272Fz0)

What that's doing, if I drag now,

* [15:31 - 15:33](https://www.youtube.com/watch?t=931&v=g57sD272Fz0)

is it's popping up and then bouncing back down.

* [15:33 - 15:35](https://www.youtube.com/watch?t=933&v=g57sD272Fz0)

So at frame 20 it's a scale of 1.2

* [15:35 - 15:39](https://www.youtube.com/watch?t=935&v=g57sD272Fz0)

and then we know that it's a scale of 1 at the end.

* [15:41 - 15:42](https://www.youtube.com/watch?t=941&v=g57sD272Fz0)

Move the playhead to frame 20,

* [15:42 - 15:44](https://www.youtube.com/watch?t=942&v=g57sD272Fz0)

set the Scale to 1.2,

* [15:46 - 15:49](https://www.youtube.com/watch?t=946&v=g57sD272Fz0)

and then you should see that it's popping up.

* [15:51 - 15:53](https://www.youtube.com/watch?t=951&v=g57sD272Fz0)

Then to finish this off we're moving

* [15:53 - 15:56](https://www.youtube.com/watch?t=953&v=g57sD272Fz0)

our playhead to frame 30.

* [15:56 - 15:59](https://www.youtube.com/watch?t=956&v=g57sD272Fz0)

Again, please make sure you are on that frame,

* [15:59 - 16:01](https://www.youtube.com/watch?t=959&v=g57sD272Fz0)

so frame 30 is represented in this box.

* [16:02 - 16:05](https://www.youtube.com/watch?t=962&v=g57sD272Fz0)

And then we need to just set a couple of other properties.

* [16:05 - 16:08](https://www.youtube.com/watch?t=965&v=g57sD272Fz0)

So GameOverText - Text Colour.

* [16:08 - 16:10](https://www.youtube.com/watch?t=968&v=g57sD272Fz0)

We need the Alpha to be 1.

* [16:10 - 16:12](https://www.youtube.com/watch?t=970&v=g57sD272Fz0)

So I can expand that

* [16:12 - 16:16](https://www.youtube.com/watch?t=972&v=g57sD272Fz0)

and set the Alpha to 1 so I know that it's going to

* [16:16 - 16:20](https://www.youtube.com/watch?t=976&v=g57sD272Fz0)

increase and become fully visible by frame 30.

* [16:21 - 16:22](https://www.youtube.com/watch?t=981&v=g57sD272Fz0)

Then I'm going to close it back down

* [16:23 - 16:25](https://www.youtube.com/watch?t=983&v=g57sD272Fz0)

and with the ScreenFader I want

* [16:25 - 16:27](https://www.youtube.com/watch?t=985&v=g57sD272Fz0)

that to fade up to 1 as well

* [16:27 - 16:29](https://www.youtube.com/watch?t=987&v=g57sD272Fz0)

so I'm going to set the Color.A property to 1,

* [16:29 - 16:31](https://www.youtube.com/watch?t=989&v=g57sD272Fz0)

so the color alpha to 1.

* [16:32 - 16:34](https://www.youtube.com/watch?t=992&v=g57sD272Fz0)

As soon as I do it I see that the blue appears,

* [16:34 - 16:35](https://www.youtube.com/watch?t=994&v=g57sD272Fz0)

so that's correct.

* [16:36 - 16:39](https://www.youtube.com/watch?t=996&v=g57sD272Fz0)

And finally ScoreText

* [16:40 - 16:44](https://www.youtube.com/watch?t=1000&v=g57sD272Fz0)

at the end should be a scale of 0.8

* [16:44 - 16:47](https://www.youtube.com/watch?t=1004&v=g57sD272Fz0)

So I'm going to set those in, 0.8.

* [16:47 - 16:49](https://www.youtube.com/watch?t=1007&v=g57sD272Fz0)

Basically we're just shrinking that down

* [16:49 - 16:51](https://www.youtube.com/watch?t=1009&v=g57sD272Fz0)

so it makes Game Over more prominent.

* [16:51 - 16:53](https://www.youtube.com/watch?t=1011&v=g57sD272Fz0)

We don't want them to be the same size, we just scale one down

* [16:53 - 16:55](https://www.youtube.com/watch?t=1013&v=g57sD272Fz0)

as the GameOverText bounces up.

* [16:57 - 17:00](https://www.youtube.com/watch?t=1017&v=g57sD272Fz0)

If you've done those correctly, as you scrub over

* [17:00 - 17:02](https://www.youtube.com/watch?t=1020&v=g57sD272Fz0)

it should be doing something like this.

* [17:03 - 17:06](https://www.youtube.com/watch?t=1023&v=g57sD272Fz0)

ScoreText is going down, the blue is fading up,

* [17:06 - 17:09](https://www.youtube.com/watch?t=1026&v=g57sD272Fz0)

Game Over is bouncing in and becoming more visible.

* [17:09 - 17:12](https://www.youtube.com/watch?t=1029&v=g57sD272Fz0)

Whilst HealthUI is hiding

* [17:12 - 17:14](https://www.youtube.com/watch?t=1032&v=g57sD272Fz0)

or disappearing behind the ScreenFader.

* [17:15 - 17:18](https://www.youtube.com/watch?t=1035&v=g57sD272Fz0)

What we should have is our clip

* [17:18 - 17:20](https://www.youtube.com/watch?t=1038&v=g57sD272Fz0)

and what you'll notices is that if we press play

* [17:20 - 17:23](https://www.youtube.com/watch?t=1040&v=g57sD272Fz0)

in the animation view it's constantly looping.

* [17:23 - 17:25](https://www.youtube.com/watch?t=1043&v=g57sD272Fz0)

We don't want that to happen.

* [17:25 - 17:27](https://www.youtube.com/watch?t=1045&v=g57sD272Fz0)

But before we address that what we're going to

* [17:27 - 17:31](https://www.youtube.com/watch?t=1047&v=g57sD272Fz0)

do is to move all of our keyframes to

* [17:31 - 17:33](https://www.youtube.com/watch?t=1051&v=g57sD272Fz0)

further on in the timeline, because we don't want

* [17:33 - 17:35](https://www.youtube.com/watch?t=1053&v=g57sD272Fz0)

this to happen as soon as the player dies

* [17:35 - 17:38](https://www.youtube.com/watch?t=1055&v=g57sD272Fz0)

because we won't get to see the PlayerDeath animation

* [17:38 - 17:40](https://www.youtube.com/watch?t=1058&v=g57sD272Fz0)

or the enemies changing to Idle or anything like that.

* [17:41 - 17:45](https://www.youtube.com/watch?t=1061&v=g57sD272Fz0)

So you can zoom in the animation view.

* [17:45 - 17:47](https://www.youtube.com/watch?t=1065&v=g57sD272Fz0)

Use that if this next part proves difficult

* [17:47 - 17:49](https://www.youtube.com/watch?t=1067&v=g57sD272Fz0)

you can use the scroll wheel,

* [17:49 - 17:51](https://www.youtube.com/watch?t=1069&v=g57sD272Fz0)

if you're on a Mac you can use the 2 finger zoom.

* [17:51 - 17:53](https://www.youtube.com/watch?t=1071&v=g57sD272Fz0)

But what I'm going to do

* [17:53 - 17:56](https://www.youtube.com/watch?t=1073&v=g57sD272Fz0)

is to drag a box over all of my keyframes.

* [17:59 - 18:01](https://www.youtube.com/watch?t=1079&v=g57sD272Fz0)

Then drag all of them so that

* [18:01 - 18:03](https://www.youtube.com/watch?t=1081&v=g57sD272Fz0)

the first keyframe is on

* [18:03 - 18:07](https://www.youtube.com/watch?t=1083&v=g57sD272Fz0)

1 second 30 frames, or 90 frames in total.

* [18:08 - 18:10](https://www.youtube.com/watch?t=1088&v=g57sD272Fz0)

So move it like that, that way it's going to stop playing,

* [18:10 - 18:12](https://www.youtube.com/watch?t=1090&v=g57sD272Fz0)

you'll see the other animations in the game

* [18:12 - 18:15](https://www.youtube.com/watch?t=1092&v=g57sD272Fz0)

and then this GameOver sequence is going to pop in.

* [18:16 - 18:18](https://www.youtube.com/watch?t=1096&v=g57sD272Fz0)

And finally disable record mode.

* [18:18 - 18:21](https://www.youtube.com/watch?t=1098&v=g57sD272Fz0)

So switch off that record button.

* [18:23 - 18:26](https://www.youtube.com/watch?t=1103&v=g57sD272Fz0)

Like I said, animation clips will loop.

* [18:27 - 18:30](https://www.youtube.com/watch?t=1107&v=g57sD272Fz0)

So the default in Unity is for looping animation.

* [18:30 - 18:33](https://www.youtube.com/watch?t=1110&v=g57sD272Fz0)

With something like this you don't want it to loop.

* [18:33 - 18:35](https://www.youtube.com/watch?t=1113&v=g57sD272Fz0)

And the way that you address that is a

* [18:35 - 18:37](https://www.youtube.com/watch?t=1115&v=g57sD272Fz0)

little bit hidden away, it's not ideal

* [18:37 - 18:39](https://www.youtube.com/watch?t=1117&v=g57sD272Fz0)

but it's attached to the clip.

* [18:39 - 18:41](https://www.youtube.com/watch?t=1119&v=g57sD272Fz0)

We don't want this to loop so what I'd like

* [18:41 - 18:44](https://www.youtube.com/watch?t=1121&v=g57sD272Fz0)

you to do is to go to the Animation folder

* [18:44 - 18:46](https://www.youtube.com/watch?t=1124&v=g57sD272Fz0)

in the Assets.

* [18:50 - 18:53](https://www.youtube.com/watch?t=1130&v=g57sD272Fz0)

And select the GameOverClip that we just made.

* [18:53 - 18:54](https://www.youtube.com/watch?t=1133&v=g57sD272Fz0)

So that clip that we just made,

* [18:54 - 18:57](https://www.youtube.com/watch?t=1134&v=g57sD272Fz0)

the default at the top there is Loop Time.

* [18:57 - 18:59](https://www.youtube.com/watch?t=1137&v=g57sD272Fz0)

Uncheck Loop Time at the top

* [18:59 - 19:01](https://www.youtube.com/watch?t=1139&v=g57sD272Fz0)

of the inspector.

* [19:03 - 19:05](https://www.youtube.com/watch?t=1143&v=g57sD272Fz0)

Then reselect the HUD Canvas

* [19:05 - 19:07](https://www.youtube.com/watch?t=1145&v=g57sD272Fz0)

and you'll notice that Unity has added

* [19:07 - 19:10](https://www.youtube.com/watch?t=1147&v=g57sD272Fz0)

like I mentioned before, the animator component

* [19:10 - 19:13](https://www.youtube.com/watch?t=1150&v=g57sD272Fz0)

and it's created a HUD Canvas

* [19:14 - 19:15](https://www.youtube.com/watch?t=1154&v=g57sD272Fz0)

Animator Controller.

* [19:16 - 19:18](https://www.youtube.com/watch?t=1156&v=g57sD272Fz0)

It names it after the game object

* [19:18 - 19:20](https://www.youtube.com/watch?t=1158&v=g57sD272Fz0)

that you started animating basically,

* [19:20 - 19:22](https://www.youtube.com/watch?t=1160&v=g57sD272Fz0)

that's why it's the same name.

* [19:22 - 19:24](https://www.youtube.com/watch?t=1162&v=g57sD272Fz0)

So I can double click that asset to open it

* [19:24 - 19:26](https://www.youtube.com/watch?t=1164&v=g57sD272Fz0)

in the animator window of the state machine.

* [19:27 - 19:29](https://www.youtube.com/watch?t=1167&v=g57sD272Fz0)

And that's exactly what we need to do.

* [19:29 - 19:31](https://www.youtube.com/watch?t=1169&v=g57sD272Fz0)

So double click HUD Canvas,

* [19:31 - 19:34](https://www.youtube.com/watch?t=1171&v=g57sD272Fz0)

the animator controller no the game object,

* [19:34 - 19:36](https://www.youtube.com/watch?t=1174&v=g57sD272Fz0)

to open it in the animator window.

* [19:36 - 19:38](https://www.youtube.com/watch?t=1176&v=g57sD272Fz0)

So by default it puts it in as a new state

* [19:38 - 19:40](https://www.youtube.com/watch?t=1178&v=g57sD272Fz0)

and it puts that clip in to that state

* [19:40 - 19:43](https://www.youtube.com/watch?t=1180&v=g57sD272Fz0)

as the default one to play and it's just going to loop it.

* [19:43 - 19:46](https://www.youtube.com/watch?t=1183&v=g57sD272Fz0)

We've stopped it looping by unchecking Loop Time

* [19:46 - 19:49](https://www.youtube.com/watch?t=1186&v=g57sD272Fz0)

but we also don't want it to play straight away.

* [19:49 - 19:52](https://www.youtube.com/watch?t=1189&v=g57sD272Fz0)

So we're going to right click

* [19:52 - 19:55](https://www.youtube.com/watch?t=1192&v=g57sD272Fz0)

Create State - Empty.

* [19:56 - 19:57](https://www.youtube.com/watch?t=1196&v=g57sD272Fz0)

So we'll have a new grey state.

* [19:57 - 19:59](https://www.youtube.com/watch?t=1197&v=g57sD272Fz0)

This state doesn't have any animation clips

* [19:59 - 20:02](https://www.youtube.com/watch?t=1199&v=g57sD272Fz0)

assigned to it so it effectively does nothing at all.

* [20:03 - 20:04](https://www.youtube.com/watch?t=1203&v=g57sD272Fz0)

Here's the problem that we're solving.

* [20:04 - 20:06](https://www.youtube.com/watch?t=1204&v=g57sD272Fz0)

As soon as I press play

* [20:08 - 20:10](https://www.youtube.com/watch?t=1208&v=g57sD272Fz0)

it's game over. You want people to have a bit more

* [20:10 - 20:12](https://www.youtube.com/watch?t=1210&v=g57sD272Fz0)

of a game-based experienced.

* [20:12 - 20:15](https://www.youtube.com/watch?t=1212&v=g57sD272Fz0)

So what we'll do is to solve that

* [20:15 - 20:17](https://www.youtube.com/watch?t=1215&v=g57sD272Fz0)

by stopping this being played by the

* [20:17 - 20:18](https://www.youtube.com/watch?t=1217&v=g57sD272Fz0)

animator straight away.

* [20:19 - 20:21](https://www.youtube.com/watch?t=1219&v=g57sD272Fz0)

We've made a new empty state

* [20:21 - 20:23](https://www.youtube.com/watch?t=1221&v=g57sD272Fz0)

and we don't have any motion,

* [20:23 - 20:25](https://www.youtube.com/watch?t=1223&v=g57sD272Fz0)

so usually when you see a state it has

* [20:25 - 20:27](https://www.youtube.com/watch?t=1225&v=g57sD272Fz0)

an animation clip in the motion field.

* [20:27 - 20:29](https://www.youtube.com/watch?t=1227&v=g57sD272Fz0)

We don't want that there.

* [20:29 - 20:31](https://www.youtube.com/watch?t=1229&v=g57sD272Fz0)

If we really wanted to we could rename it

* [20:31 - 20:33](https://www.youtube.com/watch?t=1231&v=g57sD272Fz0)

Empty but we don't need to at all.

* [20:33 - 20:36](https://www.youtube.com/watch?t=1233&v=g57sD272Fz0)

But we do want that to be the default

* [20:36 - 20:38](https://www.youtube.com/watch?t=1236&v=g57sD272Fz0)

so we're going to right click on our new state

* [20:38 - 20:41](https://www.youtube.com/watch?t=1238&v=g57sD272Fz0)

or our empty state, and choose Set As Default.

* [20:42 - 20:45](https://www.youtube.com/watch?t=1242&v=g57sD272Fz0)

Then we're going to create a transition

* [20:45 - 20:48](https://www.youtube.com/watch?t=1245&v=g57sD272Fz0)

Make Transition to GameOverClip State.

* [20:49 - 20:51](https://www.youtube.com/watch?t=1249&v=g57sD272Fz0)

And we're going to select that transition

* [20:51 - 20:53](https://www.youtube.com/watch?t=1251&v=g57sD272Fz0)

and you'll see that there's a condition called

* [20:53 - 20:55](https://www.youtube.com/watch?t=1253&v=g57sD272Fz0)

Exit Time, but we don't want that.

* [20:55 - 20:57](https://www.youtube.com/watch?t=1255&v=g57sD272Fz0)

We want to have an actual trigger

* [20:57 - 20:58](https://www.youtube.com/watch?t=1257&v=g57sD272Fz0)

to make this happen.

* [20:58 - 21:00](https://www.youtube.com/watch?t=1258&v=g57sD272Fz0)

In our parameters we're going to

* [21:00 - 21:03](https://www.youtube.com/watch?t=1260&v=g57sD272Fz0)

create a new trigger

* [21:04 - 21:06](https://www.youtube.com/watch?t=1264&v=g57sD272Fz0)

and we're going to name this

* [21:06 - 21:08](https://www.youtube.com/watch?t=1266&v=g57sD272Fz0)

parameter GameOver.

* [21:08 - 21:09](https://www.youtube.com/watch?t=1268&v=g57sD272Fz0)

Capital G and O.

* [21:09 - 21:11](https://www.youtube.com/watch?t=1269&v=g57sD272Fz0)

Remember are being addressed

* [21:11 - 21:14](https://www.youtube.com/watch?t=1271&v=g57sD272Fz0)

by a script so it's very important that you get

* [21:14 - 21:17](https://www.youtube.com/watch?t=1274&v=g57sD272Fz0)

that naming correct, capital G, capital O.

* [21:18 - 21:21](https://www.youtube.com/watch?t=1278&v=g57sD272Fz0)

We need to then set this condition

* [21:21 - 21:24](https://www.youtube.com/watch?t=1281&v=g57sD272Fz0)

so make sure the transition is highlighted in blue

* [21:24 - 21:25](https://www.youtube.com/watch?t=1284&v=g57sD272Fz0)

like this

* [21:26 - 21:28](https://www.youtube.com/watch?t=1286&v=g57sD272Fz0)

and set the condition to GameOver.

* [21:28 - 21:31](https://www.youtube.com/watch?t=1288&v=g57sD272Fz0)

So as soon as that trigger is called from a script

* [21:31 - 21:33](https://www.youtube.com/watch?t=1291&v=g57sD272Fz0)

it will fire us in to that state.

* [21:33 - 21:35](https://www.youtube.com/watch?t=1293&v=g57sD272Fz0)

Then finally

* [21:35 - 21:37](https://www.youtube.com/watch?t=1295&v=g57sD272Fz0)

we're going to select our HUD Canvas

* [21:37 - 21:40](https://www.youtube.com/watch?t=1297&v=g57sD272Fz0)

in the hierarchy and we're going

* [21:40 - 21:43](https://www.youtube.com/watch?t=1300&v=g57sD272Fz0)

go to the Scripts - Managers folder

* [21:43 - 21:46](https://www.youtube.com/watch?t=1303&v=g57sD272Fz0)

and we're going to drag and drop GameOverManager

* [21:46 - 21:48](https://www.youtube.com/watch?t=1306&v=g57sD272Fz0)

on to HUD Canvas .

* [21:48 - 21:51](https://www.youtube.com/watch?t=1308&v=g57sD272Fz0)

So in Scripts - Managers folder in the project find

* [21:51 - 21:55](https://www.youtube.com/watch?t=1311&v=g57sD272Fz0)

GameOverManager, drop it on to HUD Canvas.

* [21:55 - 21:58](https://www.youtube.com/watch?t=1315&v=g57sD272Fz0)

Then we're going to double click this to open it.

* [22:01 - 22:03](https://www.youtube.com/watch?t=1321&v=g57sD272Fz0)

As always we're going to start with our

* [22:03 - 22:06](https://www.youtube.com/watch?t=1323&v=g57sD272Fz0)

public variables a the top of the script.

* [22:07 - 22:10](https://www.youtube.com/watch?t=1327&v=g57sD272Fz0)

We first need a reference to the player's health

* [22:10 - 22:12](https://www.youtube.com/watch?t=1330&v=g57sD272Fz0)

obviously the game ends when the player

* [22:12 - 22:14](https://www.youtube.com/watch?t=1332&v=g57sD272Fz0)

has run out of health, we need to know when that is.

* [22:14 - 22:16](https://www.youtube.com/watch?t=1334&v=g57sD272Fz0)

Next we have a public float

* [22:16 - 22:19](https://www.youtube.com/watch?t=1336&v=g57sD272Fz0)

which is the restartDelay, so that's how long it's going

* [22:19 - 22:21](https://www.youtube.com/watch?t=1339&v=g57sD272Fz0)

to take once the player has died

* [22:21 - 22:23](https://www.youtube.com/watch?t=1341&v=g57sD272Fz0)

before we restart.

* [22:23 - 22:25](https://www.youtube.com/watch?t=1343&v=g57sD272Fz0)

Next we have our private variables,

* [22:25 - 22:26](https://www.youtube.com/watch?t=1345&v=g57sD272Fz0)

We're got an animator reference,

* [22:26 - 22:28](https://www.youtube.com/watch?t=1346&v=g57sD272Fz0)

obviously because we need to set the

* [22:28 - 22:30](https://www.youtube.com/watch?t=1348&v=g57sD272Fz0)

animator's trigger parameter.

* [22:30 - 22:33](https://www.youtube.com/watch?t=1350&v=g57sD272Fz0)

And a timer for that restartDelay.

* [22:34 - 22:36](https://www.youtube.com/watch?t=1354&v=g57sD272Fz0)

So in our awake function

* [22:36 - 22:39](https://www.youtube.com/watch?t=1356&v=g57sD272Fz0)

we're going to setup the reference as we have done before

* [22:39 - 22:40](https://www.youtube.com/watch?t=1359&v=g57sD272Fz0)

using getComponent.

* [22:40 - 22:42](https://www.youtube.com/watch?t=1360&v=g57sD272Fz0)

And then in update

* [22:42 - 22:44](https://www.youtube.com/watch?t=1362&v=g57sD272Fz0)

we're going to check if the player has

* [22:44 - 22:46](https://www.youtube.com/watch?t=1364&v=g57sD272Fz0)

run out of health, if he's got less than

* [22:46 - 22:49](https://www.youtube.com/watch?t=1366&v=g57sD272Fz0)

or equal to 0 health.

* [22:49 - 22:51](https://www.youtube.com/watch?t=1369&v=g57sD272Fz0)

So if he has he's dead.

* [22:51 - 22:53](https://www.youtube.com/watch?t=1371&v=g57sD272Fz0)

So we're going to set the animator trigger parameter

* [22:53 - 22:54](https://www.youtube.com/watch?t=1373&v=g57sD272Fz0)

to GameOver.

* [22:55 - 22:58](https://www.youtube.com/watch?t=1375&v=g57sD272Fz0)

We'll set that and it'll trigger that animation.

* [22:59 - 23:01](https://www.youtube.com/watch?t=1379&v=g57sD272Fz0)

We're then going to start the restart timer

* [23:01 - 23:04](https://www.youtube.com/watch?t=1381&v=g57sD272Fz0)

and we're going to start counting up that timer.

* [23:04 - 23:06](https://www.youtube.com/watch?t=1384&v=g57sD272Fz0)

Once that exceeds the restart delay,

* [23:07 - 23:09](https://www.youtube.com/watch?t=1387&v=g57sD272Fz0)

so when the restart timer is`

* [23:09 - 23:13](https://www.youtube.com/watch?t=1389&v=g57sD272Fz0)

increased enough that it is greater than 5 seconds then

* [23:13 - 23:16](https://www.youtube.com/watch?t=1393&v=g57sD272Fz0)

we're going to call application.loadLevel.

* [23:16 - 23:18](https://www.youtube.com/watch?t=1396&v=g57sD272Fz0)

So that's just going to reload

* [23:19 - 23:22](https://www.youtube.com/watch?t=1399&v=g57sD272Fz0)

the scene because we've parsed in the loaded level.

* [23:22 - 23:24](https://www.youtube.com/watch?t=1402&v=g57sD272Fz0)

So usually you can write in a string, you might

* [23:24 - 23:27](https://www.youtube.com/watch?t=1404&v=g57sD272Fz0)

say level 01

* [23:27 - 23:28](https://www.youtube.com/watch?t=1407&v=g57sD272Fz0)

if you add it to the build settings

* [23:28 - 23:32](https://www.youtube.com/watch?t=1408&v=g57sD272Fz0)

but if you're reloading the same scene you can use shortcuts

* [23:32 - 23:35](https://www.youtube.com/watch?t=1412&v=g57sD272Fz0)

called LoadedLevel which is the one that's there.

* [23:35 - 23:38](https://www.youtube.com/watch?t=1415&v=g57sD272Fz0)

It's a very simple script, just a way to

* [23:38 - 23:40](https://www.youtube.com/watch?t=1418&v=g57sD272Fz0)

count up to a particular point

* [23:40 - 23:42](https://www.youtube.com/watch?t=1420&v=g57sD272Fz0)

if you've run out of health whilst also

* [23:42 - 23:44](https://www.youtube.com/watch?t=1422&v=g57sD272Fz0)

triggering the animation of GameOver

* [23:44 - 23:46](https://www.youtube.com/watch?t=1424&v=g57sD272Fz0)

to appear on the screen.

* [23:46 - 23:49](https://www.youtube.com/watch?t=1426&v=g57sD272Fz0)

Going back to Unity, we are very finally

* [23:49 - 23:51](https://www.youtube.com/watch?t=1429&v=g57sD272Fz0)

going to select our HUD Canvas

* [23:51 - 23:53](https://www.youtube.com/watch?t=1431&v=g57sD272Fz0)

and you'll notice that the GameOver Manager

* [23:53 - 23:55](https://www.youtube.com/watch?t=1433&v=g57sD272Fz0)

needs to know about PlayerHealth.

* [23:55 - 23:57](https://www.youtube.com/watch?t=1435&v=g57sD272Fz0)

So we need to assign the player

* [23:57 - 24:00](https://www.youtube.com/watch?t=1437&v=g57sD272Fz0)

to that public property PlayerHealth.

* [24:00 - 24:02](https://www.youtube.com/watch?t=1440&v=g57sD272Fz0)

With my HUD Canvas selected I'm going to drag

* [24:02 - 24:05](https://www.youtube.com/watch?t=1442&v=g57sD272Fz0)

Player and drop it on to PlayerHealth

* [24:05 - 24:07](https://www.youtube.com/watch?t=1445&v=g57sD272Fz0)

so it's got a reference to that, it can find out

* [24:07 - 24:10](https://www.youtube.com/watch?t=1447&v=g57sD272Fz0)

our health and therefore when we have died.

* [24:10 - 24:13](https://www.youtube.com/watch?t=1450&v=g57sD272Fz0)

Select the background music

* [24:14 - 24:16](https://www.youtube.com/watch?t=1454&v=g57sD272Fz0)

and do Play On Awake.

* [24:16 - 24:18](https://www.youtube.com/watch?t=1456&v=g57sD272Fz0)

Finally save your scene,

* [24:18 - 24:22](https://www.youtube.com/watch?t=1458&v=g57sD272Fz0)

pat yourselves on the back and press play

* [24:22 - 24:24](https://www.youtube.com/watch?t=1462&v=g57sD272Fz0)

to shoot some zombie toys.

* [24:26 - 24:28](https://www.youtube.com/watch?t=1466&v=g57sD272Fz0)

It'll probably sound like this.

* [24:37 - 24:39](https://www.youtube.com/watch?t=1477&v=g57sD272Fz0)

I'm going to turn that down a bit.