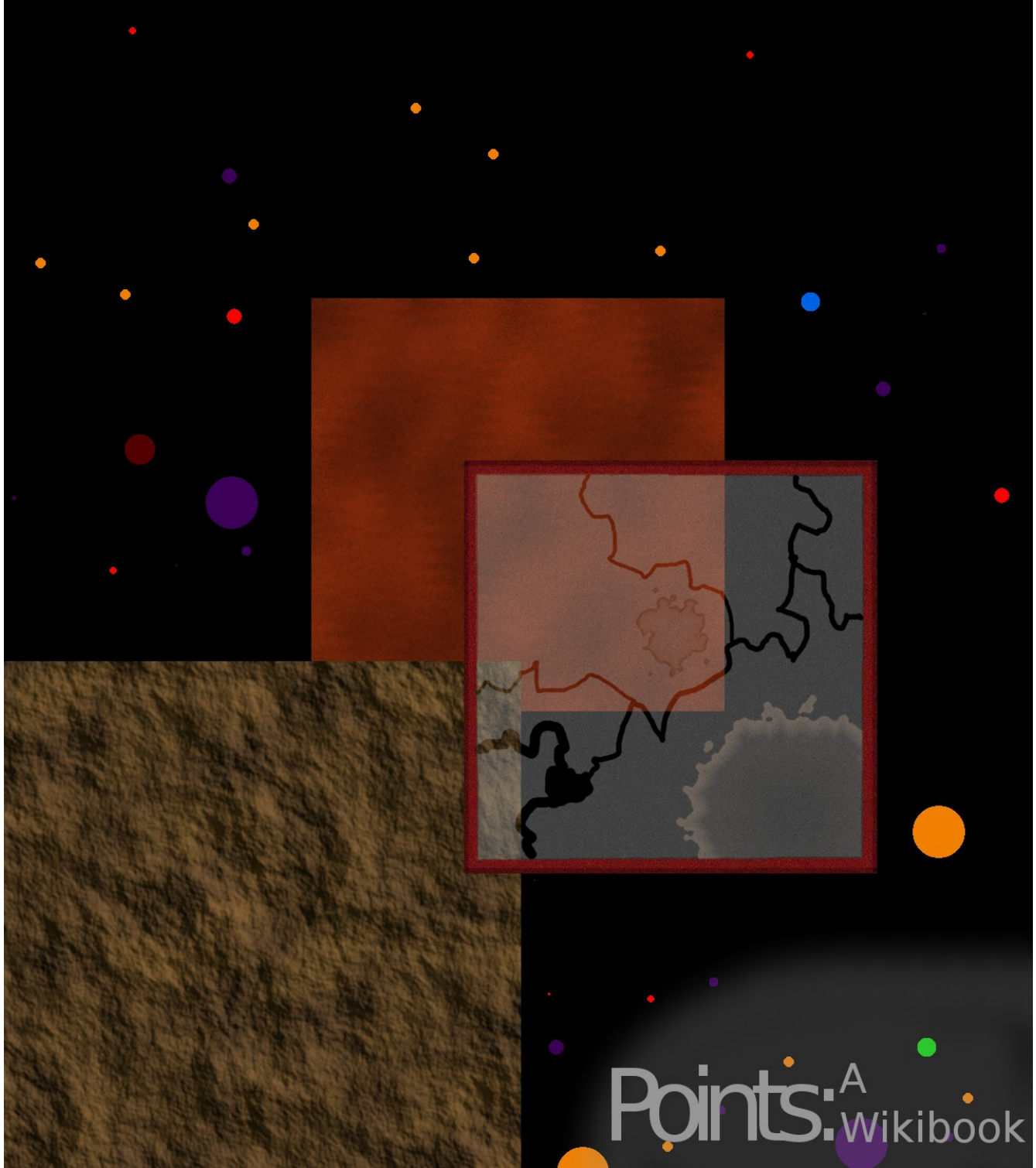


Beyond Blender Render

A Guide To Blender Gaming



Points: ^A Wikibook

About This Book

Before we go any further with poetry or high hopes, we'd like to say that this book is for version 2.6 (.3) of Blender. It can be used for earlier versions, but the methods aren't guaranteed to work.

Also we must assume that you have a working knowledge of Blender modelling as this book only covers the Blender Game Engine (also referred to as BGE and GE). For a better Blender knowledge you should look at [Blender 3D: Noob to Pro](#). If you don't have this working knowledge of Blender, fear not! Use the Blend Notes on each page which will tell you how to do stuff and what that word means:



Blender Notes: Notes For The Novice

Some Blender Notes may say **Blender Note: For Everyone**. That means that even if you already have Blender knowledge you should look at it.

What You Need

Blender For Your OS

Number one: an OS (operating system). The best would be Linux, Windows, or MacOS. Next you should get Blender. Head to their site at www.blender.org and then look for the downloads page. Run down the page and find Blender for your OS. Download it and if you need to install, do so.

Next We Need GIMP

Not necessarily GIMP. Blender uses a system called UV Texturing. With this you can apply images to objects. To make these images you will need a reasonably good image editor such as [GIMP](#). You can also download images from the web, but this may cause a run-in with licensing.

Other Stuff

Story

You will need an idea. You can play around with tutorials and experiment but if you really want to release a good game you need to have a name, a game play idea and maybe even a story. If you're stumped at this you can use a quick version of [mine](#).

A Good Imagination

You or someone on your team needs a good imagination. Using this you can imagine the landscape, gameplay, story, and menus of your game. Most importantly this can help with programming your game.

Story's The Story

Why Do You Need A Story?

You don't NEED a story. It is there to give depth to the game, form a sort of mission. It makes a player want to play on. And it can make it more difficult to create a game. If you don't have a good story take mine and edit a bit to fit your needs.

Story Is The Heart Of A Game

Never mind the poetry. Let's get to it:

Everyone wants to fit in, to be cool, even to be admired.

You're the same. Since you were a baby you have wanted to prove yourself... to your mother... to your father... to the [Insert the name of a council like "Martian high council"]!

So you set out on a quest!

For as long as you remember your civilization has been under threat from [Insert an evil name like "The Bachra"].

The [Insert the name of that council again] is helpless.

This will be your quest: DESTROY [Insert that evil name again in ALL CAPS]!

You set out on your quest on a dark [Insert a kind of weather like "Sunny Day"].

Your quest will take you far from your home but you are content.

This is what you have wanted to do since you first met The Cool Ones.

You will prove that you are strong... you will prove that you are smart...

you will prove that you are trust worthy...

An so here you are in the middle of the [Insert a location name], a loan figure walking.

Prepare for battle!

I don't necessarily WANT you to use this. Just if you have nothing better. The story is yours to license once you have finished editing. Just please reference it to Wikibooks: Beyond Blender Render.

More And More About Stories

If you're good at animating in Blender why not make some cut-scenes. These are small bits of animation that tell you about the story or tell you the way to go. It's always nice to do.

Draw, Draw, Draw, Write, Write, Write

Drawing Will Draw Up The Game

If you want to get stuff down before getting to work and forgetting it get a piece of paper a pencil and a clip board. Draw up the GUI (the graphical user interface or menus and HUD), the level maps, the stuff that might count as background. Write stuff up on files you may need, stuff you want, and your Christmas Shopping List. You don't have to get this done before on computer development, in fact you don't even need to do it at all. Just it helps. Remember. The larger the game the harder it will be to remember an make. SO MAKE IT LARGE!

Discuss, Argue and Fight

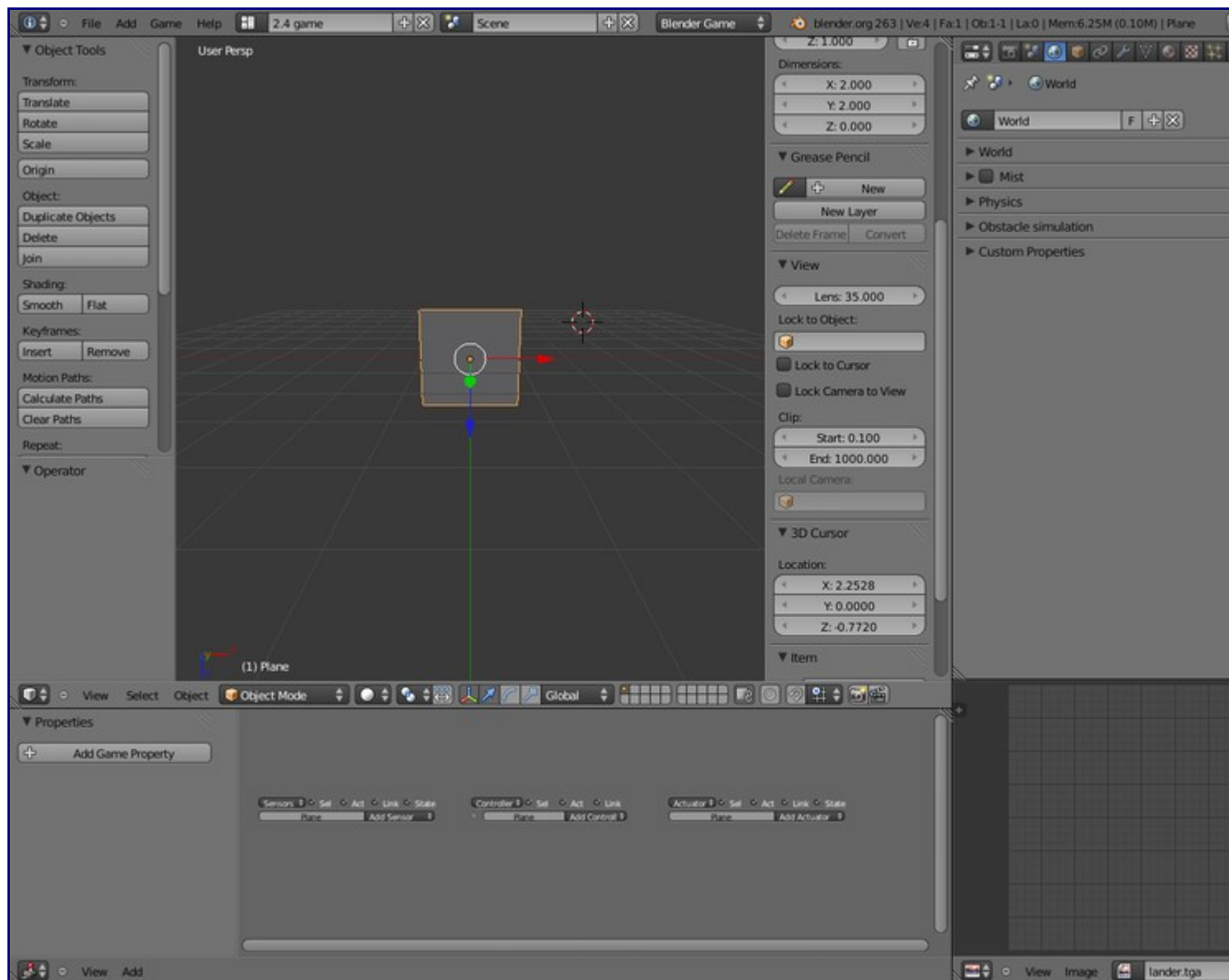
Discuss stuff about the game. Think about what you want in it, special pick-ups, challenges and more. Try to decide on what you all want so as to make sure you don't argue and none of the stuff works. Have a bed fight if you want and this might even end up in the game. Be inventive.

Open Up Blender And Don't Be Discouraged

Ever Commandeered A Rocket Ship?

It's well known that Blender's GUI looks like a rocket ships controls. Don't be discouraged. Let's get started.

Here's what Blender generally looks like.



BLENDER NOTE: For The Novice



Looks difficult to you newbie? Don't get discouraged. Blender is very easy. Just take it one step at a time. In no time you'll be a Blender Geek yourself!

Start The Logic

BLENDER NOTE: For The Novice



Different edit windows in Blender are displayed in separate panels. You can scale these panels and you can also change what they display by clicking the pull down menu on the far left with an icon in it.

BLENDER NOTE: For The Novice



To select an object put the cursor over it in the 3D view and **RIGHT-CLICK** it. To select two or more objects select one then hold **SHIFT** and select the others.

BLENDER NOTE: For The Novice



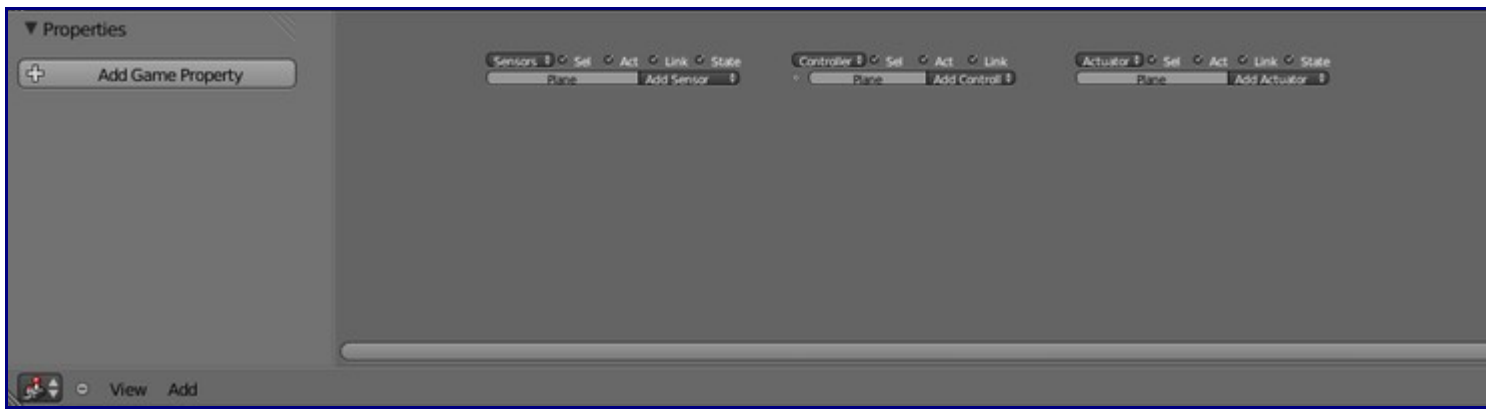
To delete an object select it and press **X**. Then confirm that you want to delete in the menu that pops up. If you don't want to delete it when the menu pops up press **ESC**.

BLENDER NOTE: For The Novice



To add an object press **SHIFT+A**. Then select an object in the menu that pops up.

Delete all the objects in the 3D view and then add a plane and a cube. In the bottom panel of the Blender window open the "Logic Editor". The Logic Editor looks like this:



What you see here is the logic. Logic is sort of the BGE programming language. Each object has a logic window. When you select an object it will display the logic for the object.

BLENDER NOTE: For The Novice



To move an object select it and press **G**. Then move the cursor wherever you want to move the object. You can also select a certain axis to move it on by pressing the axis letter on the keyboard after pressing **G**. To confirm the movement **LEFT-CLICK**. To discard the movement **RIGHT-CLICK**.

Please select the cube. Move it up a bit so it's a bit above the plane. The cube will be our character and the plane will be our ground.



BLENDER NOTE: For The Novice

To scale an object select it and press **S**. Then move the cursor so that it scales. You can also select a certain axis to scale it on by pressing the axis letter on the keyboard after pressing **G**. To confirm the movement **LEFT-CLICK**. To discard the movement **RIGHT-CLICK**.

Please scale the plane so it's a bit larger than the cube.

So let's start the Logic. Go to the [next tutorial](#) to learn how to use basic logic and what physics is for.

A Simple Start

In this chapter you will learn the basics of the blender game.

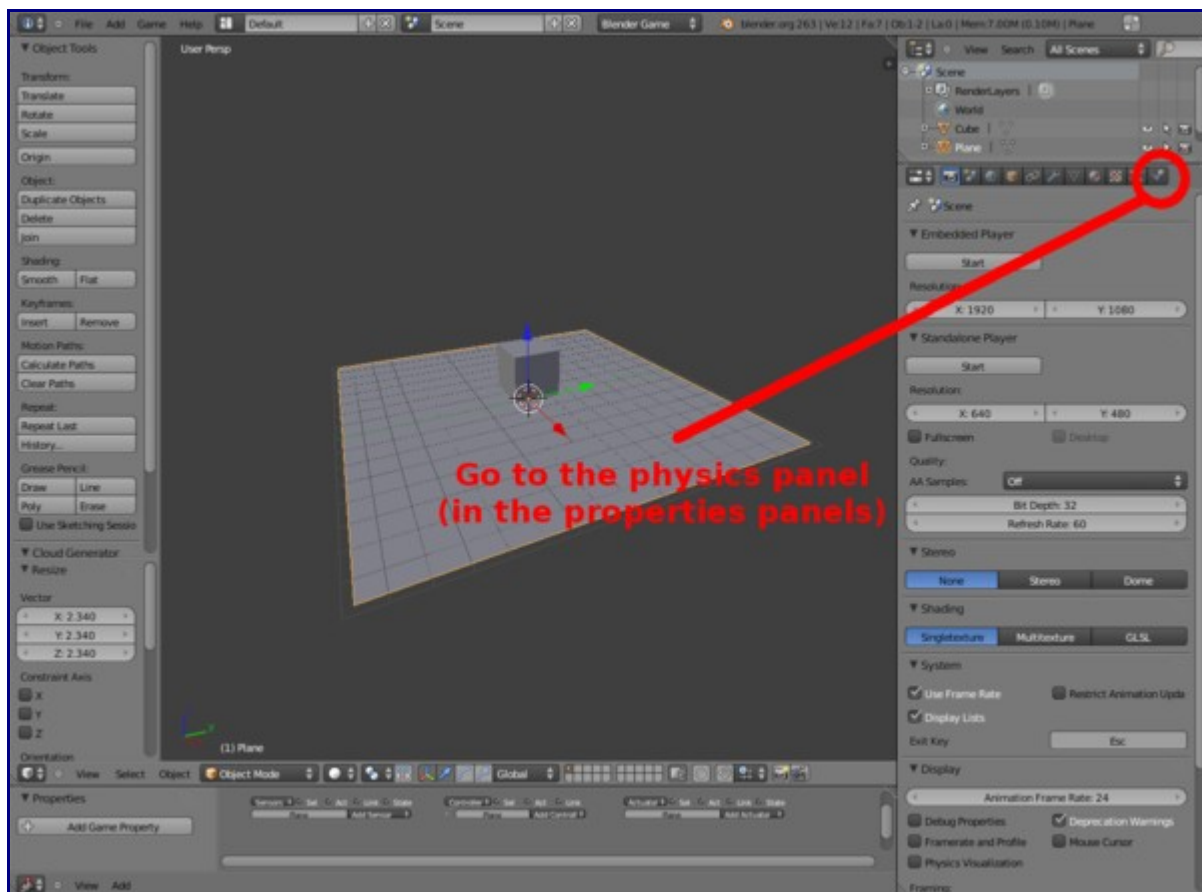
BLENDER NOTE: For Everyone

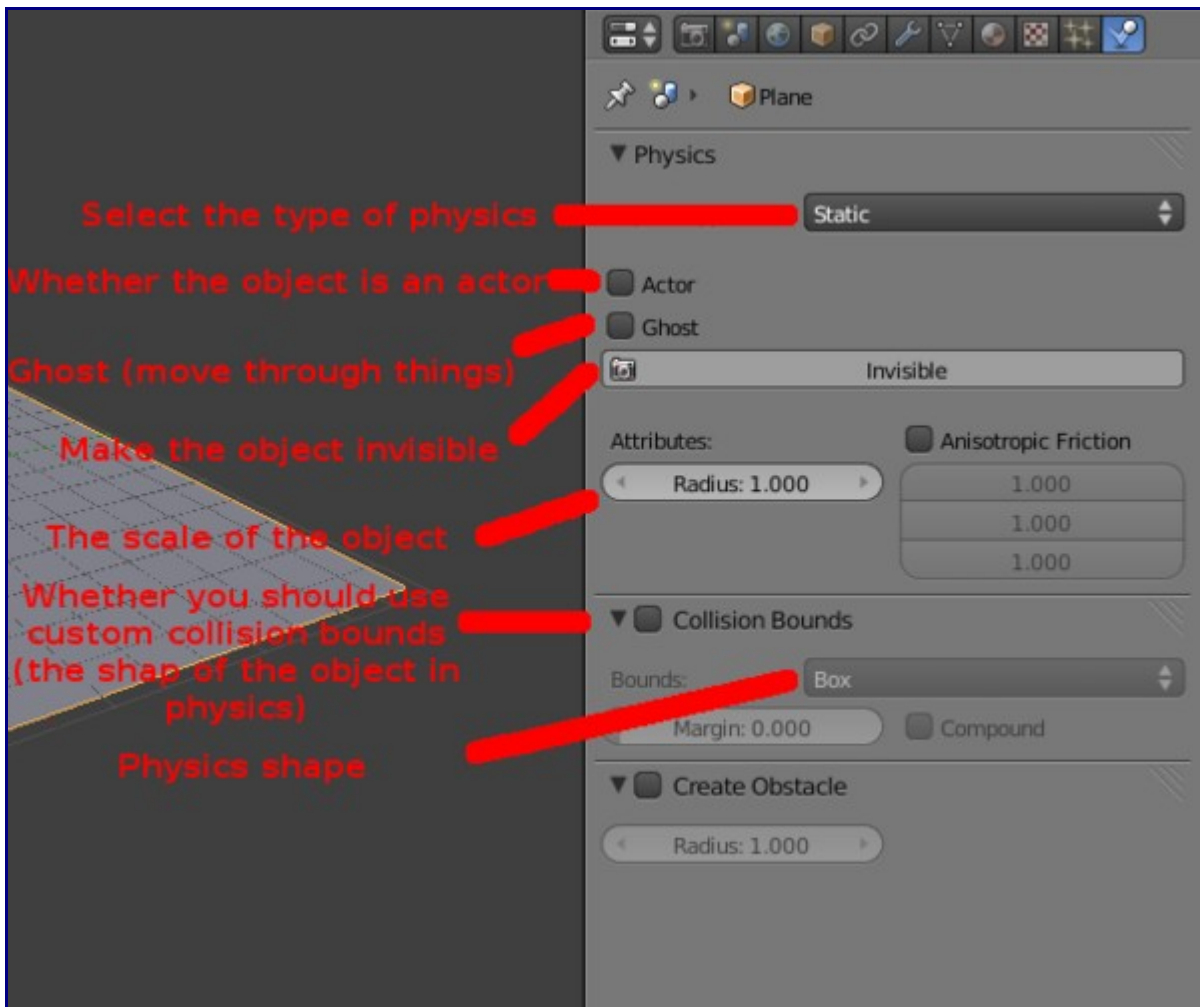


Before you continue please look at the top of the Blender window where there is the pull-down menu titled Blender Render. Click it and select Blender Game. This means that Blender will pick the BGE as the render engine.

Bang, Crash And Scare: What's Up With Physics

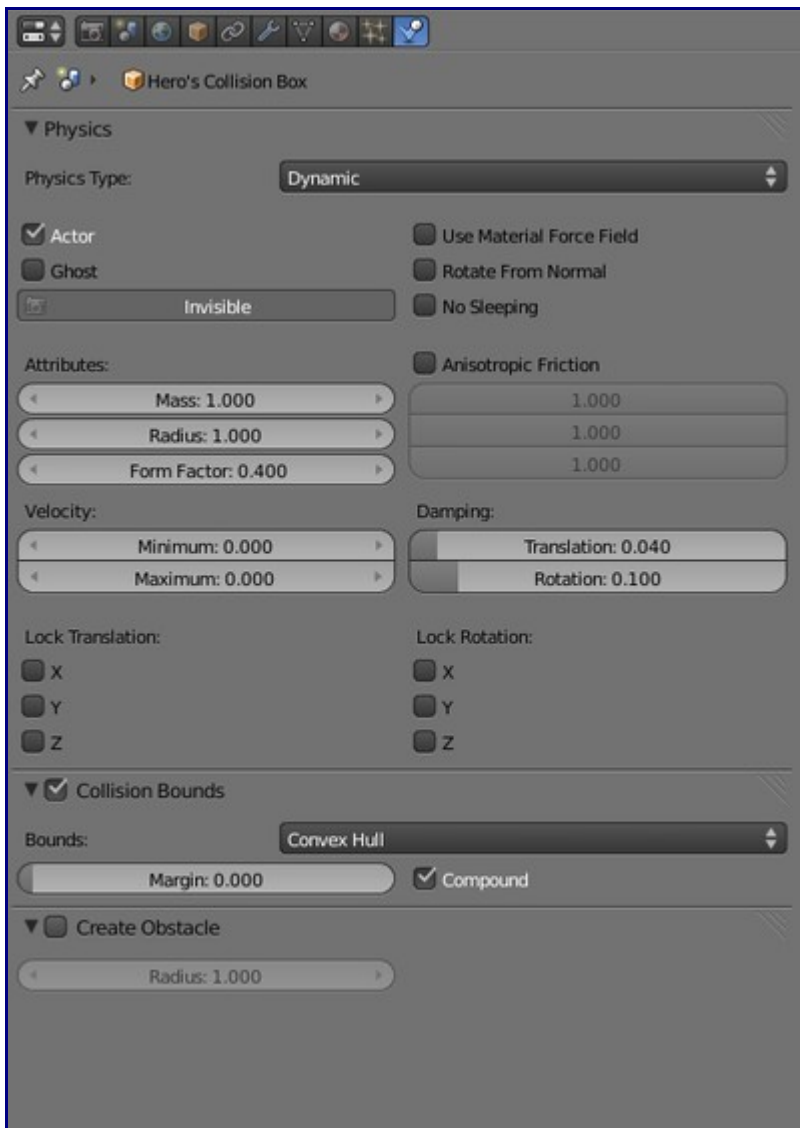
Objects in the Blender Game Engine will require physics settings. Why? The physics controls what happens when two objects meet, whether objects fall and if this object is a certain shape.



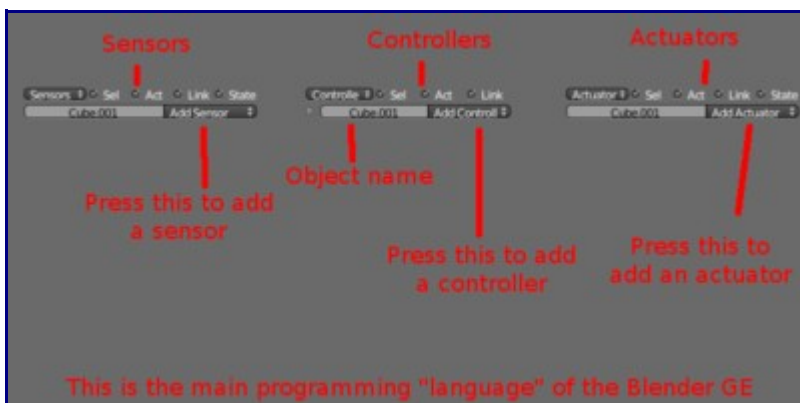


This is the properties panel. When an object is selected it will display that object's physics.

Please set the cube's physics to Dynamic in the first pull down menu. This means that the cube will fall, bounce, bounce back and basically act as a normal object in our world beyond the computer. The panel should now look like this:



What's Logic?



Logic is sort of the programming language for Blender. You have the sensors on the left that activate the controllers in the middle which activate the actuators at the end that do something. To add a brick click add select the type. Do this all along the line then connect them by dragging a "Wire" from the dot at the end and beginning of each brick.

A picture of the normal appearance of a Logic Brick. This brick is not real.



So let's make something move! Find out how in [the next chapter!](#)

Make Something Move

What's What?

Let me explain how each logic brick works.

Sensors

First there are sensors. These sense for something (such as keyboard presses or mouse clicks but not the neighbour's cat) and activate the [controllers](#).

Actuator sensor

The actuator sensor detects if a particular actuator has been set off.

Always sensor

The always sensor basically means Always do this.

Collision sensor

Like touch but works with properties instead of materials.

Delay sensor

Delay sensor is activated after a set amount of time.

Joystick sensor

Senses joystick movements and presses

Keyboard sensor

This detects keyboard presses.

Message sensor

This detects messages sent by the message actuator.

Mouse sensor

Detects mouse input.

Near sensor

Detects if an object with a certain property is nearby.

Property sensor

Detects if a property on the current object is equal or between one or two equivalents.

Radar sensor

Detects an object with a certain property along a certain access.

Random sensor

Triggers so many times per second randomly.

Touch sensor

Detects when this object touches another object with a certain material.

Controllers

These decide what to do with the signal from the [sensors](#) (such as activate a python script or activate an [actuator](#)).

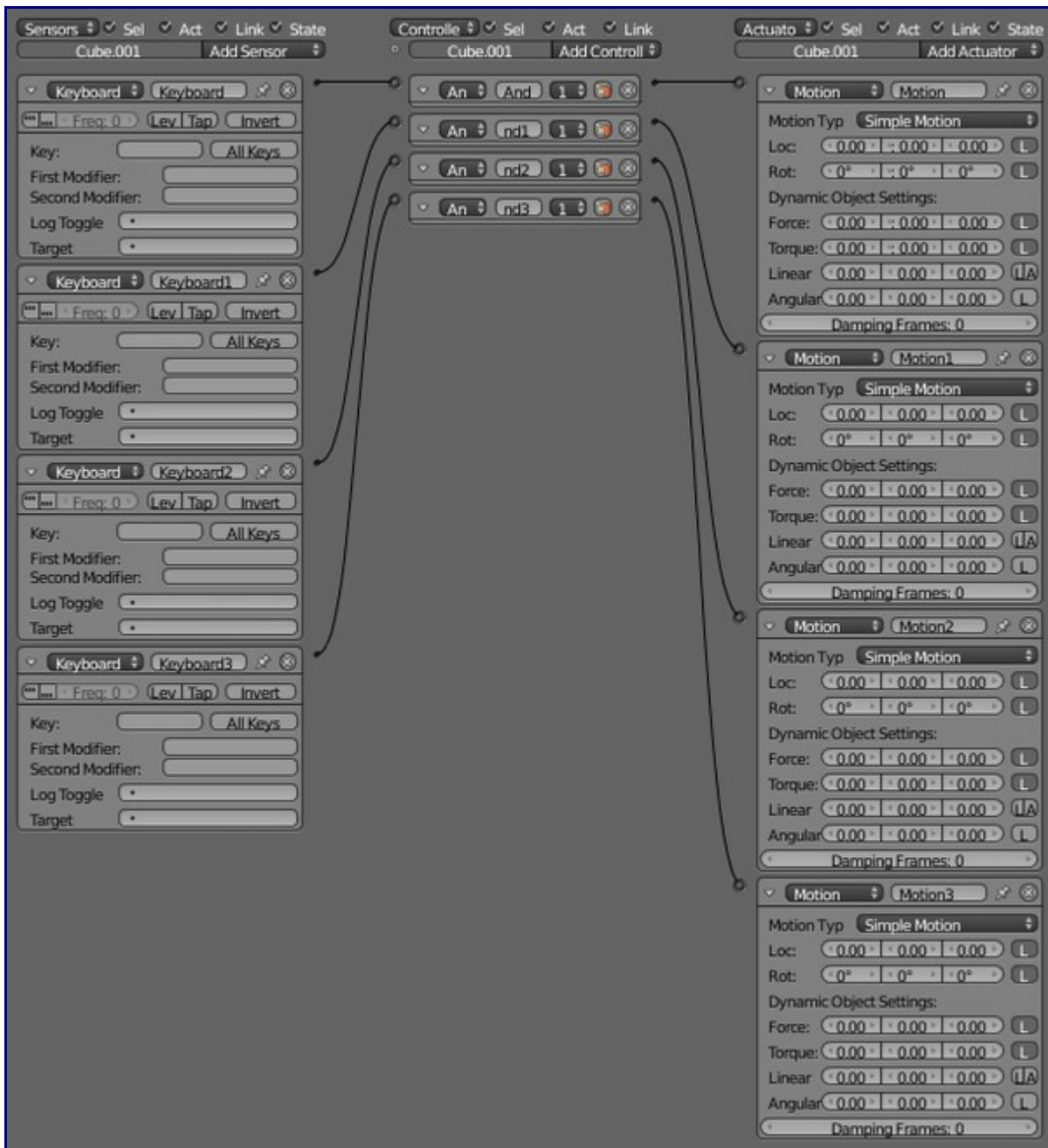
Actuators

These do something with the signal from the [controllers](#) (such as move, start a game or pause this one).

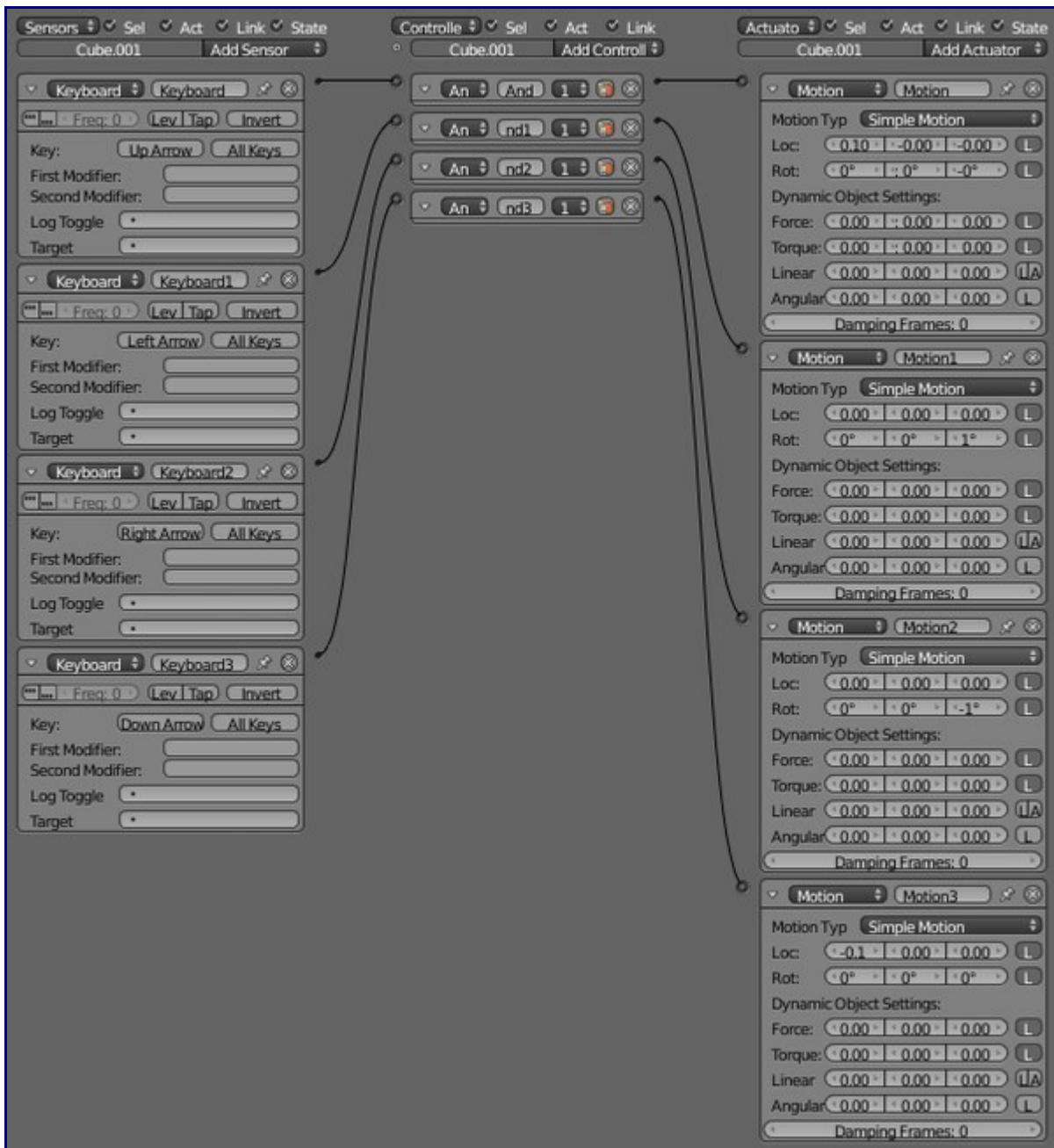
Add Some Logic

Okay, time to get to work. Make sure you are on the cube (or what ever you want your hero to be). Add four **keyboard** sensors. Next, add four **and** controllers. Finally add four **movement** actuators.

Now connect the top sensor with the top controller and the top controller with the top actuator. Then connect the second to the top to the second to the top and so on until they are all connected like so:



Next look at the top Keyboard Sensor. There should be a button with no text near the top. Click this button and then press the key you want to be Forward in the game. The most common keys for this purpose are "W" and "UpArrow". Then using the ones below you may set backwards, left and right.



Now your logic should look like this.

Now look down your actuator list. You'll see small fields with numbers in them. You can click them to edit their number. They control how much you are moving and in which direction. The fields go in the order of X axis, Y axis and Z axis. The fields with decimals in them are for motion and the fields with ° are for rotation (along the axis of your choice). Set all these to what you see in the above picture.

Note: If the L is on next to the fields that means that they will be Local directions for the object. If the L is not on they shall use global coordinates.

Next: [Lights, CAMERA, Action: Learn how to use the camera](#)

Lights, CAMERA, Action

In this chapter you will learn what a camera is for and what you need to do with it.

Why A Camera

The camera is how you move your view in the game. You will need it to run around with your character, do some nice cut-scenes and add overlay scenes.

You Could Do With A Camera

BLENDER NOTE: For The Novice



To add an object press **SHIFT-A** and select what type of object you want to make.

BLENDER NOTE: For Everyone



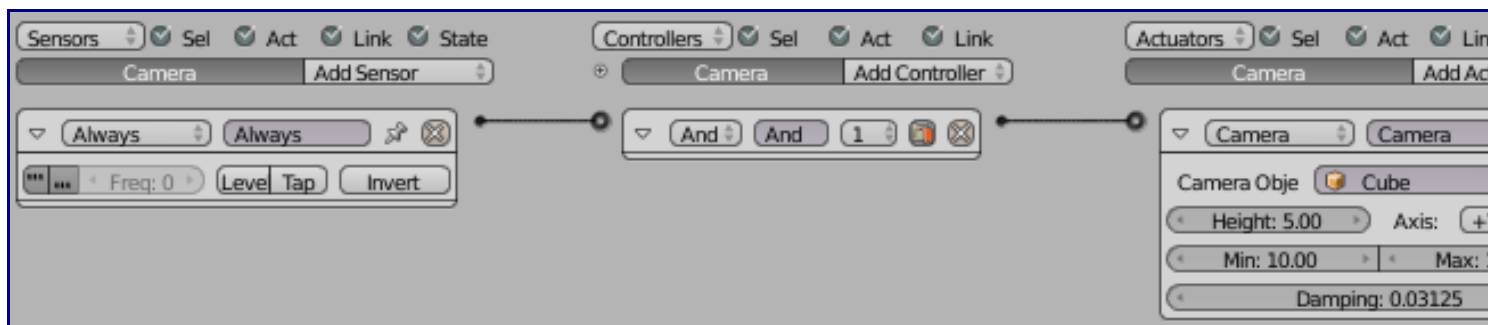
What is parenting? It basically means that one object will follow another. You can do this by select the to objects you want to parent making sure that the child object (the one you want to follow the other around) is selected first. Then go to the **Object** menu at the bottom of the 3D view and go to **Parent>Set** and select **Object**. Then confirm this move in the pop-up menu that comes up.

First add a camera. Next you can move it to a nice view of the character. Finally you can parent it to the character, making sure the character is the parent. That is one way.

That way will make the camera follow the character no matter what. It will remain firm and will look very un-smooth. You can add a slow parent and this is much preferred for it's ease and nice feel. But you can also use the Camera Actuator:

Get That Camera Fixed

Select your camera and add an **Always**, an **And** and a **Camera** Actuator. Connect them all. Now fiddle with the settings for the **Camera** Actuator. Play the game (by pressing **P**) and then correct the Camera Actuator until you find a nice setting that fits you. But for ease you can also just use this setting which, generally, works:



Got your camera? Excellent. Now let's add [A Destination](#).

A Destination

What Is A Destination?

A destination is a place you need to go in a game to win the said game. There are often obstacles in the way who are either there by coincidence and just like to squash, slash or in some way harm you, or don't want you to get to your destination. All great games have something like it. It could a checkered line in a racing game or an enemy that needs to be defeated. It's your decision.

BLENDER NOTE: For The Novice

What is a material? It's a data block on an object that stores things like whether that object is invisible, if it reflects, if it gives off light, etc.. Objects are also recognised in the BGE with their material. You don't need a material but it helps. For more info:



- [Overview](#)
- [Blender 3D: Noob to Pro/Quickie Material](#)
- [Multiple Materials per Object](#)
- [Blender 3D: Noob to Pro/Image Textures](#)
- [Blender 3D: Noob to Pro/Procedural Textures](#)
- [Blender 3D: Noob to Pro/Quickie Texture](#)
- [Blender 3D: Noob to Pro/Halo Materials](#)

Now To Make It

Now let's have a destination. Find a nice place that the character must walk to. Add an empty there or maybe an object with great twists and turns. Make it obvious that you need to get to it or that it is of great importance in the game. Now make sure that the character has a material on it like Hero or Main Char or Char. This material will be used to figure out if the character has walked into the object.

Select the destination object. Now add a Touch Sensor, an And and a Scene Actuator. Connect them all. Now take the touch sensor and select the character's material in its field. This will detect when an object with the material [Character's Material] touches it.

Scenes Are What?

BLENDER NOTE: For The Novice



What are scenes? For ease you may go to [this page](#) for more information.

Now we must add a scene. Name it something like WIN or MWAH HA HA I WON or something like that. Wait. What are scenes for in the BGE? We know [here](#).



BLENDER NOTE: For Everyone

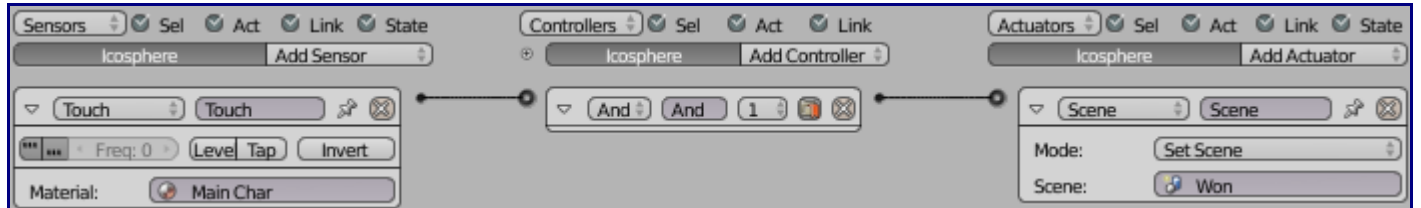
A text object is basically text that can be seen in a render. You can scale, rotate and move it like a

normal object but you can still edit it like text.

To edit the text in a text object select it and than press **TAB**. Write any thing you want like you do in a normal text editor. When you're done press **TAB** again.

We used Won for the scene name. Add some text in the Won scene and write some nice message.

Now head back to the gameplay scene. Select the destination object. Now let's compare our logic and correct it if necessary:



Now let's save. This is important in Blender because it can occasionally crash. Save as much as possible and remember: Blender doesn't ask you if you want to save when you close!

Now start the game engine. Let's see what it's like.

Now this is boring! We need some obstacles! Well, let's make a landscape.

BLENDER NOTE: For The Novice



Can't model yet? See [this article](#).

Scenes

BLENDER NOTE: For The Novice



What are scenes? They are like different worlds in a .blend (that being the file format of Blender). You can use them for anything you think will work. To toggle your scene look at the pull down menu at the top of the window (generally with the text "scene" in it. You can add scenes from this menu and when there are more then one you may toggle between them.

What *are* scenes **for**? Here are the many uses:

HUD

Do you know what a HUD is? It stands for **H**eads **U**p **D**isplay and basically has your points, health or whatever you want to be told during gameplay. In Blender you create a separate scene for the HUD and get it to overlay on the gameplay. It looks like a normal HUD... because it **is**!

Too Bad, You Lost!

Don't you want consolation in a game when you lose? Add another scene and write something funny, sympathizing or weird.

Surprise, You Won!

If you won you want to be told that you have and maybe some of the variables giving you that win. Another scene and you're in business.

The Game Is *Paused*

You want pause menus? When you press the button it will bring up a scene that displays your options.

Why a landscape? That's obvious. It makes a level more fun if there is a landscape to navigate rather than a plane with a cube at the end and some jumping gargoyles. So make one. Tips? Here:

Landscaping

Tips On Landscaping



TIPS ON LANDSCAPING

TIPS ON LANDSCAPING: What Is The Landscape?



#1. What place is this? If it's on a dry desert planet you don't want it to have lush green forests. If it's under water you don't want there to be dirigibles flying around. Make a landscape that fits what is going on in the game.

TIPS ON LANDSCAPING: I Think Low-Pollieness Is In Order

BLENDER NOTE: For The Novice



What is a "Skybox"? It is basically a box that has clouds or sky on it that you use to make the sky.

#2. Are there parts of your landscape that you will never get to in the game but still see? If so, photo and then delete them. They'll take up to much space and RAM. Instead make them part of the skybox.

TIPS ON LANDSCAPING: Death Defying Drops!

#3. Add some death defying drops and some ponds (but only if they fit the landscape). You may also add a "Physics Mesh" around a pond like this which is invisible but stops you from falling in.

BLENDER NOTE: For Everyone



Is your landscape High-Poly? If so you can make your high-poly objects "No Collision" in the physics and add a less high poly model which is invisible around it. This is called a physics mesh. It will make it so that the physics engine doesn't have to handle so much stuff.

Objects To Push

We could have...

Domino walls, domino pillars, cones moving all over the place, rolling spheres, fragmenting balconies, falling objects... --Breath--

Yes there is a lot that we could have. But let me simplify. Here we learn how to make objects that fall on you or must be pushed over. So let's start.

Objects To Push

How do you make an object to push? By creating the model for a start. Make it and then put it in the position you would want it to be in. Set it as Dynamic in the physics. Now play and push it over. Should work.

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