

# Notes on Using Blender for Games

Geoffrey Matthews

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## **Textbook:**

- <http://www.cdschools.org/Page/455> An excellent intro textbook. Make sure you get the version for Blender 2.5/6. For the game engine, read:

**Chapter 1, The Blender Interface**

**Chapter 2, Working with Viewports**

**Chapter 3, Creating/Editing Objects**

**Chapter 4, Materials and Textures** You can only use image textures in the game engine, not any of Blender's generated textures. See Chapter 22, also.

**Chapter 9, Animation Basics**

**Chapter 16, Armatures**

**Chapter 21, Game Engine Basics**

**Chapter 22, Game Engine Textures**

## Beginning tutorials

- <https://www.youtube.com/watch?v=tczC2URHRao> Excellent 14-part series by Josh Beck, designed for 7th graders.
- <http://teachgames.wordpress.com/tutorials-blender/> Also has a platformer, and a short introduction in the tutorial notes.
- [https://www.youtube.com/watch?v=M\\_u2IlsnK0k](https://www.youtube.com/watch?v=M_u2IlsnK0k)
- <https://www.blender.org/support/tutorials/> Some interesting game tutorials at the bottom.

## Physics tutorials

- [https://www.youtube.com/watch?v=w3WG2W\\_Hi8I&index=2&list=PLMYtDzby1wdYpDbwoTuaX](https://www.youtube.com/watch?v=w3WG2W_Hi8I&index=2&list=PLMYtDzby1wdYpDbwoTuaX)

## Python tutorials

- <http://www.cgmasters.net/free-tutorials/python-scripting/>
- <https://www.youtube.com/watch?v=CG4C7PZAqDQ&index=2&list=PLMYtDzby1wdZIH203Xv5>
- <http://solarlune-gameup.blogspot.com/search/label/BGE%20Tutorials>

## Platformer tutorials

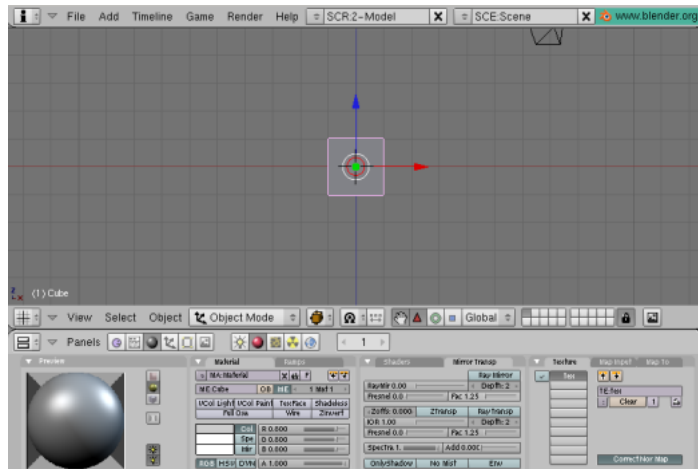
- [http://www.blendernation.com/2011/12/14/creating-a-platformer-in-the-blender-g](http://www.blendernation.com/2011/12/14/creating-a-platformer-in-the-blender-game-engine/)
- <http://teachgames.wordpress.com/tutorials-blender/>
- <https://www.youtube.com/watch?v=SzwK7Ziwsao>

## FPS tutorials

- <http://blenderartists.org/forum/showthread.php?85219-BGE-FPS-Template-12-28-06>
- [http://blenderartists.org/forum/showthread.php?290771-How-to-make-an-FPS-game-\(HD-Video-tutorial\)](http://blenderartists.org/forum/showthread.php?290771-How-to-make-an-FPS-game-(HD-Video-tutorial))
- <https://www.youtube.com/watch?v=d2BL9Ax0Rec>

## Use Blender 2.5 or higher

- There was a huge change in Blender between 2.49 and 2.5
- 2.5 is MUCH better
- Only use tutorials for 2.5, 2.6, 2.7, ...
- Do not look at any tutorials for 2.49 or lower
- If the starting screen looks like this, with all the controls across the bottom, DON'T USE IT:





## Starting Blender Game Engine Development

- Start blender
- Change rendering engine from **Blender Render** to **Blender Game**
- Expand right hand panel and lower panel.
- Change lower panel to game logic panel.
- Change Multitexture to GLSL in Render panel (tiny camera), Shading subpanel
- Save startup file
- Tools shelf
- 3D cursor
- Control-uparrow to maximize window
- Numpad views
- Mouse:
  - Middle mouse: rotate
  - Shift middle mouse: translate
  - Control middle mouse or Scroll: zoom
- Objects:
  - G: move (grab)
  - R: rotate
  - S: scale
- Multiple layouts
- Multiple scenes
- Use layers to simplify

## Add some objects

- In the 3d window, press **P** to play game
- Press **esc** when done
- Move cube up
- In rendering properties (tiny camera), change Shading to GLSL
- Add a material and diffuse color (original cube already has material, pick color)
- Snap cursor to center (shift S)
- Add playing surface (shift A)
- Go to edit mode (tab)
- Scale by 10 (S then 10)
- Exit edit mode (tab)
- Add a material and diffuse color (buttons on right)
- Press **P**
- Press **esc**

## **Add some behavior to the cube**

- Right-click the cube
- In the Game Logic panel create a keyboard sensor
- Set key to up arrow
- Create an and-controller
- Connect keyboard sensor
- Create a motion-actuator
- Connect and-controller
- Set motion to simple motion, local coordinates, change y location 0.1
- Make sure the L (local coordinates) button is pressed
- Generally best to regard y as forward, x as right, and z as up.
- In 3d window, press P
- Press up arrow. Cube should move forward.
- Press esc
- Add left-arrow key sensor, connect to rotate z local 1
- Add right-arrow key sensor, connect to rotate z local -1
- Play game

## **Add some physics**

- Select (right click) the cube
- Go to physics button (bouncy ball)
- Change Static to Rigid Body
- Play game
- Walk off cliff

## **Add some balls**

- Add Collision bounds to cube
- Add two spheres
- Give them material and color
- Make them rigid bodies
- Play game, push spheres off cliff
- Edit spheres, check collision sphere

## Using animations

- Animate in animation screen
- Give animation a name
- Use actuator to play animation
- Remember to set first and last frames

## **Character modelling**

- Mirror modifier (Properties, modifiers under tiny wrench)
- Smooth shading (tool shelf, Tools: shading)

## **Character rigging**

- Set x-ray of armature (not mesh)
- E to extrude bone
- Turn on Armature Options X-Axis Mirror
- Shift-E to extrude mirror bones
- Parent mesh to armature, automatic weights



## **Character animation**

- Move armature in pose mode
- Select ALL bones
- Press I to insert pose
- Scroll to new time
- Copy/paste poses in mirror form
- Press I to insert pose
- Repeat
- Name animation to play in action actuator
- In game logic, attach action to armature, not mesh

## Character textures

- In Shading panel (tiny camera) change Shading to GLSL
- In texture panel make sure Material Texture is checked (three icons, sphere, sphere, tablecloth, check the middle one)
- Give object texture: Image (or Movie)
- Give texture NAME
- Give object new image
- Give image NAME
- In edit mode
- Select seam vertices
- Go to UV editing layout
- In image editor, select image NAME
- In 3d editor, edit mode, mark seam (tool shelf shading)
- Check seam to make sure you got it right
- Select all
- Unwrap object

- Change View to Paint (toolbar)
- Use image editor or external program
- If 3d window is in texture mode, can see edits in 3d

## **Skybox**

- Mark seam on cube to match your skybox
- Unwrap, UV map
- Set material to shadeless (Shading subpanel)
- Flip normals
- Scale 100
- Sky seam?

## **Game actions**

- End game, restart game
- Set scene

## Miscellaneous

- Shift-A to add something
- Shift-S to snap to somewhere
- Press control-A to apply rotations/scales/etc.
- Control-Z undo!
- Shift-control-Z redo (undo the undo)
- If you want to push a rigid body (e.g. sphere) around as the player, use global coordinates in the motion actuator.

**Assets** For models, rigs, textures, *etc.*

- <http://www.blendswap.com/>
- <https://cgcookie.com/blender/category/resources/>
- <http://www.blender-models.com/>
- <http://resources.blogscopia.com/>
- <http://www.makehuman.org/>
- <http://blenderartists.org> Some trailers of example games
- <http://www.rendertextures.com/>