

# **WILL IT BLEND? "** A DOMEHADS GUIDE TO GET CRACKING with 2.75

#### **1. SETUP BLENDER FOR DOME WORK**

- 1. Open Blender
- Delete everything by pressing A (to select everything) and then X (to delete everything)
   Press the SPACE BAR and type CAMERA then ENTER to add a camera
- 4. Set the RESOLUTION as follows:

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▼ Render ····					
🐻 Render 🖆 Animation 🕬 Audio					
Display: Image Editor					
Feature Set: Supported					
Open Shading Language					
▼ Dimensions					
Render Presets					
Resolution: Frame Range:					
• X:         4096 px •         • Start Frame:         1 •					
◀ Y:         4096 px ▶         ◀ End Frame:         250 ▶					
25% Frame Step: 1					
Aspect Ratio: Frame Rate:					
▲ X:         1.000 ▶         30 fps         ♦					
Y: 1.000 Time Remapping:					
■ Border ■ Crop ( OI: 100 > < Ne: 100 >)					
► Metadata					
▼ Output …					
/tmp/					
🕑 Overwrite 🗹 File Extensions					
Placeholders Cache Result					
BW RGB RGBA					
Color Depth: 8 16					
Compression: 15%					

5. Set the CAMERA TYPE as follows:

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Camera F						
▼ Lens						
Perspective	Orthographic	Panoramic				
Туре:	Fisheye Equid	listant 🛔				
Field of View:		180° 🕨				
Shift:	Clip	ping:				
✓ X:	0.000 🕨 🔍 Sta	art: 0.100 🕨				
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- 6. Open FILE > USER PREFERENCES and select the Add-ons tab
  - a. Type PIE MENUS OFFICIAL and install the addon
  - b. Type NETWORK RENDER and install the addon
  - c. Type ADD CURVE SAPLING and install the addon
- 7. Click SAVE USER SETTINGS at the bottom of the popup window and close it
- 8. Press the SPACE BAR and type CUBE to add a cube to the scene
- 9. Move the camera away from the cube by dragging the RED-X and GREEN-Y handles
- 10. Set CYCLES as the render engine in the menu bar up top

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ions	▼ Edit											

11. Type FILE > SAVE STARTUP FILE (CTRL + U) to save these preferences. Doing so will start Blender with these settings every time it is opened.



YOU ARE READY TO START RENDERING FOR PLANETARIUMS WITH BLENDER!

### 2. LETS MODEL A MODEL

- 1. Open Blender
- 2. Remember that default scene we created? It should be ready to go
- 3. We're going to make the hoverboard from *Back To The Future*
- 4. Scale the cube wider by pressing S + Y and dragging out
- 5. Flatten the cube by pressing S + Z and dragging down



- 6. Press Z > 6 to switch to wireframe mode
- 7. Press 7 to switch to top-down view
- 8. Add a cylinder (SPACE BAR type CYLINDER) and move it to the end of the cube like so:



- 9. LEFT CLICK the cube to select it
- 10. TAB > 6 to enter EDIT MODE
- 11. Make sure VERTEX SELECTION is selected



- 12. Press B for BOX SELECT and select the two vertices at the cylinder end
- 13. Press E to extrude the cube and drag to the right a little.
- 14. Press S + X to scale the extruded section to match the cylinder outline

15. Repeat until extruded around end of cylinder like so:



16. Press TAB > 4 to return to object mode



- 17. LEFT CLICK the CYLINDER to select it and then press X to delete it
- 18. DOUBLE CLICK the CUBE in the SCENE LIST and rename it to HOVERBOARD
- 19. LEFT CLICK the HOVERBOARD and press TAB > 6 to enter EDIT MODE
- 20. 7 for TOP VIEW and B to BOX SELECT the non-round end vertexes
- 21. E to extrude away from rounded end.
- 22. 3 for SIDE VIEW
- 23. Drag the extruded section upwards by grabbing the BLUE Z handle
- 24. With the extruded vertexes selected, press R to rotate to a more natural end bevel like so:



25. TAB > 4 to return to OBJECT MODE, Z > 2 to return to solid view

26. Press F12 or RENDER to view the progress



- 27. ZOMG. It's DARK!
- 28. Add some light by enabling nodes here, and make it nice and bright:

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► Preview	▶ Preview R: 0.717 🖉
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Use Nodes	Color:
	Strength: 1.000 > •
Enable nodes on a material, world or lamp	► Volume
Python: bpy.ops.cycles.use shading modes()	Ambient Occlusion ==
	(Factor: 1.00) (Distance: 10.000)
(Factor: 1.00) (Distance: 10.000 )	► Ray Visibility
	► Settings

29. See the difference?

### 3. BLACK & WHITE WAS COOL ... 90 YEARS AGO

- 1. Now let's add some color
- 2. LEFT CLICK to select HOVERBOARD
- 3. Click on the MATERIAL circle and click the ADD NEW button to add a new material
- 4. Name it HOVERBOARD\_MATERIAL and select a nice pink color like so:

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Surface:	Diffuse BSDF	•				
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Normal:	Default	•				
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Displacement:	Default	•				
Settings						

5. Where are we at?



- 6. Much better. But how do we know we're hovering?
- 7. SPACE BAR and type PLANE to add a plane
- 8. Press G + Z and drag the plane a little below the hoverboard
- 9. Press S and drag outwards to scale the plane up larger than the hoverboard
- 10. Open it's material properties and click ADD NEW and name it FLOOR\_MATERIAL

11. Split the 3D view by right clicking the edge of 3D view and select SPLIT AREA like so



12. Set the bottom pane as a NODE EDITOR like so:



13. Note that we see the material we created for the floor in the node editor

V Diffuse BSDF	Vaterial Output
BSDF —	Surface
Color	Volume
Roughness: 0.000	Displacement
Norma	

- 14. We're going to make a fancy checkered pattern for the floor
- 15. In the node editor choose ADD > TEXTURE > CHECKER
- 16. Place it to the left of the nodes
- 17. LEFT CLICK the DIFFUSE BSDF shader and hit SHIFT + D to duplicate it
- 18. Click ADD SHADER > MIX SHADER
- 19. Choose a Blue and a Green color for each DIFFUSE BSDF shader respectively
- 20. Wire them up like so:



21. WHICH GIVES US:





Mirror like finish with just the change of a shader. Play around with different shaders and observe their effect.

22. Cool. Now swap a DIFFUSE BSDF for a different kind of shader. What happens?

## 4. LIGHTS. CAMERA. ACTION!

- 1. Let's make this hoverboard hover.
- 2. Left click it, and press I > ROT LOC SCALE
- 3. This inserts a keyframe at current playback position (0 frame) for it's location, rotation, and scale
- 4. Enter 20 into the current frame marker, move the hoverboard up on the Z axis a bit and press I > LOC ROT SCALE to insert another keyframe
- 5. Enter 40 into the current frame marker, lower the hoverboard, and press I > LOC ROT SCALE
- 6. Repeat every 20 frames until the hoverboard is animated up/down for a couple hundred frames
- 7. Press ALT + A to view the animation. The hoverboard will go up and down.





- 8. This works with the camera too. Try to add two keyframes one at 0 and one at 200, so that the camera slowly moves away from the hoverboard.
- 9. Press ANIMATION to animate the frames. These can be stitched together at 30 fps to form a video.