

Going 3D with Blender: Modeling a clock



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About the author:

Katja is the German editor of LinuxFocus. She likes Tux, computer graphics, film & photography, travelling and the sea. Her homepage can be found here.



Abstract:

In this article we model a clock with Blender.

Modeling a clock

As always look at the image above and you get an impression of the clock we are going to create. The current Blender version as of this writing is 2.32.

Open the default scene that we created in our very first Blender tutorial, Going 3D with Blender: Very first steps and change the colour of the wall to a lighter blue, e.g. R=0, G=0.628, B=1 (right click on the wall to select it, then go to the material button and move the colour sliders). We change the colour of the wall as the case of the clock will be blue and wouldn't be viewable otherwise.

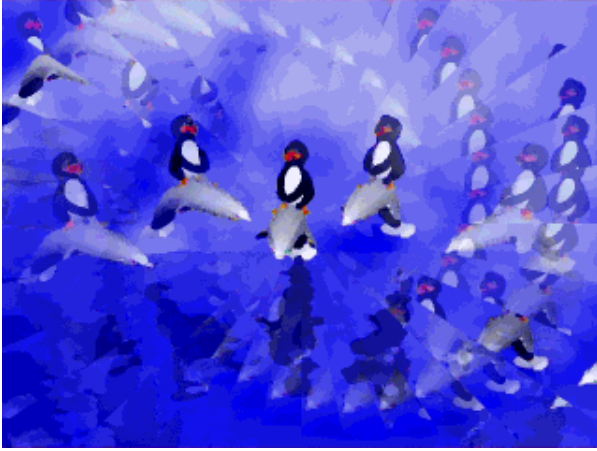
The face

For the big circle of the clock add a Bezier circle in front view (press space, Add-->Curve-->Bezier Circle, convert it into a mesh (press tab, then alt +c).

We could also have added a normal mesh circle, pressed shift +f in edit mode to give it a face. It's up to you to decide which method is more convenient to you.

Give it a texture. For this go to the material buttons and press "add new", then go to the texture button,

press "add new" again, then on "image", "load image" and load an image that you like. In the example above I gave it a texture of artistic riding dolphins that I created by using Blender and The Gimp. If you want you can download the picture below and use it for your clock.



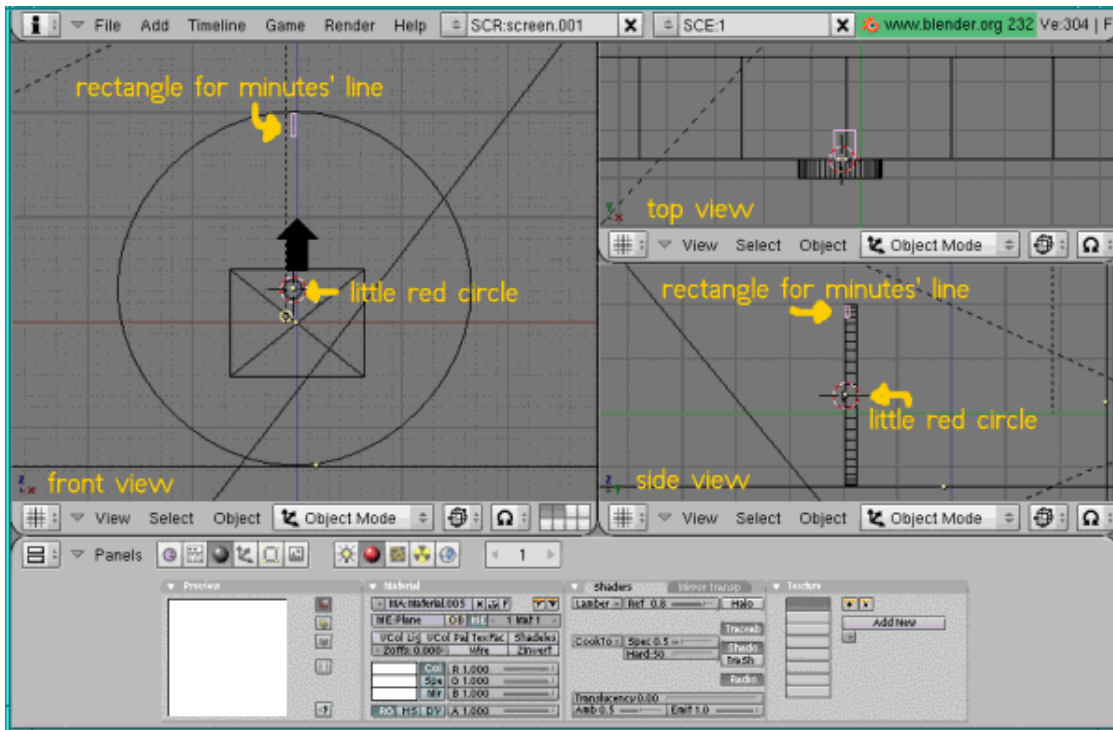
If you want you can move the slider of the emit button in the material buttons menu a bit to make the image brighter and self-shining. You can do this with all colours we add in this tutorial.

Now we have the texture. Next we want to add the red frame around the texture. Click tab to get into edit mode, then a to select all points, next e to extrude and s to scale it a little bit in front view. Go to the edit button, press "new" and "select", then go to the material button, press "add new" and move the colour sliders to R=1, G=0,B=0, then go to the texture button, press "add new" and then "none". Then go back to the edit button and click "assign".

Next press e again and s to scale again, this time a bit more. Then go to the edit buttons, press "New" and "Select" and "assign". If you render your image (press F12) now you should have a circle with the dolphin picture and a red frame around it.

With the outer ring still selected go to side view and press e to extrude, then move (press g) everything a bit.

should have and place it (press g) exactly where you would place the line for the 12 of the hours. To make this rather exact you could move the clock to layer 2 (press m) and only select this layer. Now with the background grid you can place the white rectangle at its right place).



Next press tab to get into edit mode, click a twice to select all points of the rectangle and click on the edit button in the buttons window. We want 360 degrees (it should go around the whole clock) and 60 steps (60 lines for 60 minutes). Set the cursor in the middle of the circle. Now press Spin dup and click in the front view window. Press tab to leave edit mode.

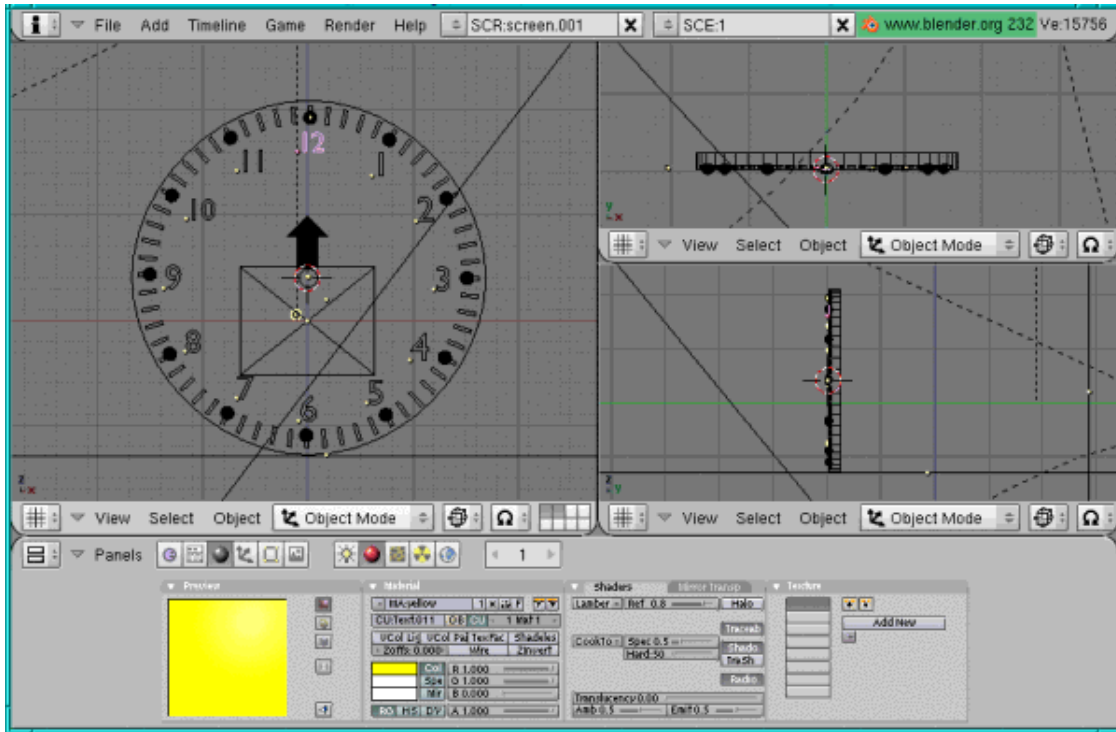
We already used this function to create the tracks for our toy train in our kid room if you remember (in case you missed it you can find it here: [Going 3D with Blender: A room with toys](#)). It's the same thing here.

The hour points

Now we want to emphasize the points that mark the hours and add a sphere at their places. Now add a sphere (press space, Add-->Mesh, UV-Sphere, leave the default values of 32 for the segments and rings), click "set smooth" in the edit buttons menu, press tab to leave edit mode and then give it a blue colour (R=0,G=0, B=1) and scale it down (press s) . Move it (press g) over the plane that you set over the 12 like you did before with the rectangle. If you placed it correctly as you want it press tab to get into edit mode and go to the edit buttons menu. Again we want 360 degrees but this time we only want 12 steps as we want to emphasize the hours this time. Set the cursor in the middle of the circle, press Spin dup and click in the front view window. Finally press tab to leave edit mode.

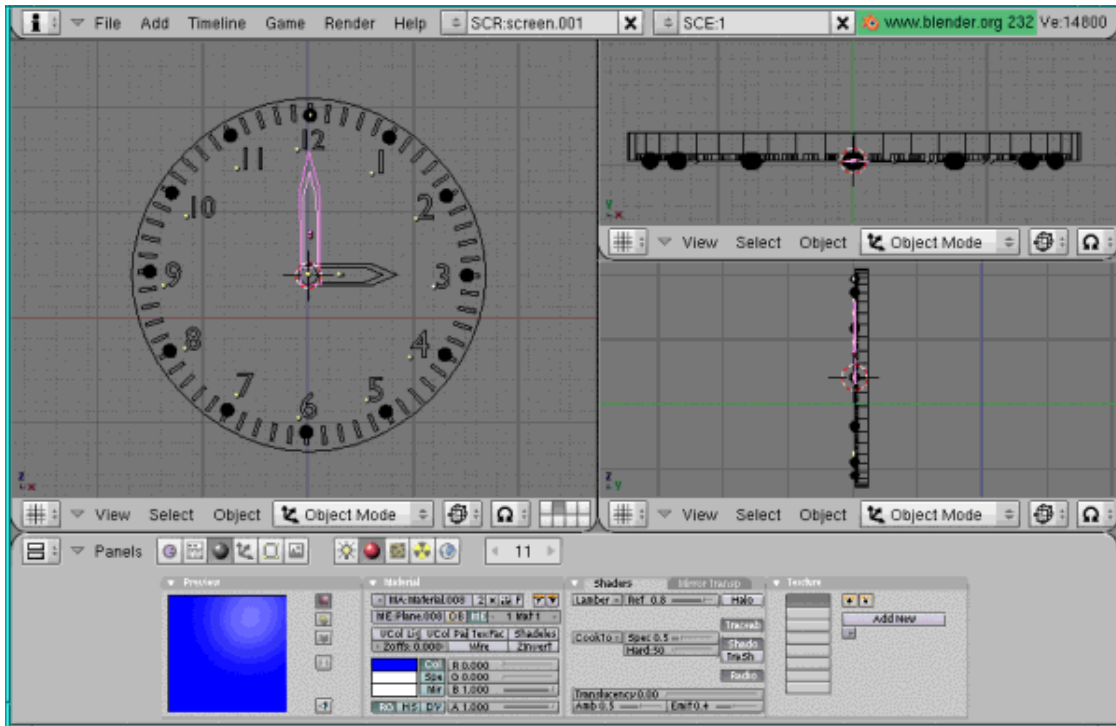
The numbers

Now you need to add the numbers. For that press space, Add -->Text, delete the default text (with backspace) and type in the number, then press tab to leave edit mode. Scale the number down (press s), give it a yellow colour (R=1,B=1,G=0) and move it (press g) to its place. You have to do this manually and it takes a little time. But after that the face of the clock is finished already.



The hands

Add a plane (hit Space, then Add-->Mesh-->Plane) in front view and scale it so (press s for scaling and at the same time hold the middle mouse button down to restrain the scaling to one side) that you get a rectangle. Select the two points at one of the smaller sides (press a to unselect all points, then press b and mark the two points with the mouse) and extrude (press e) them a bit. Then press s and move those two points together so that you get the peak. You can again use the background grid to place the peak exactly in the middle. Give it a yellow colour (go to the material buttons, press "add new" and move the colour sliders to R=1,B=1,G=0). Next select the whole object in edit mode (press a twice to select all points) and extrude (press e) the object in side view so that it gets some thickness. Press tab and then duplicate it (shift +d) and scale (press s) it a bit down and give it a blue colour (go to the material button, press "add new" (very important, otherwise the other rectangle changes its colour to blue as well) and move the colour sliders to R=0,G=0, B=1), then move (press g) it inside the bigger hand. Now you already have one hand. Place them on the face and scale them (press s) so that they fit well as hour hand. Now with both parts of the hand selected duplicate them (shift +d). Scale the duplicate (press s) so that it gets longer without getting bigger/wider and place it so that it fits well as minute hand.



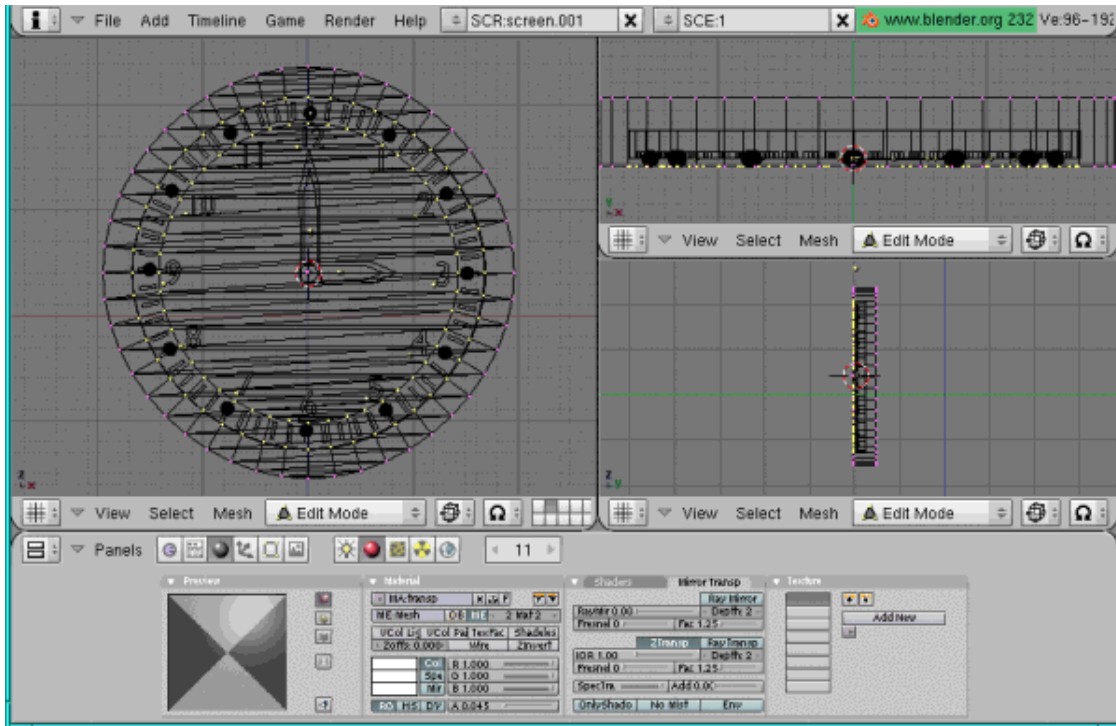
The case around the face

Add a new Bezier circle (hit Space, Add->Curve->Bezier Circle) in front view, it's center should be at the same place as the center of the circle of the face. (You can easily do it by moving the cursor over the center before adding the new circle). Press tab to leave edit mode and alt+c to convert it into a mesh circle. Scale it up (press s) so that it has the same size as the inner circle of the face circle. You can orient yourself on the rectangles of the minutes for that.

Then do as already with the other circle. Extrude (press e) and scale (press s) a little so that it is as big as the other circle. Then extrude (press e) and scale (press s) again, this time as much as you want the size of the clock to be. Then with the outmost circle still selected press e and g to give the circle some volume in side view. With the back circle still selected press shift+f to give the back a face.

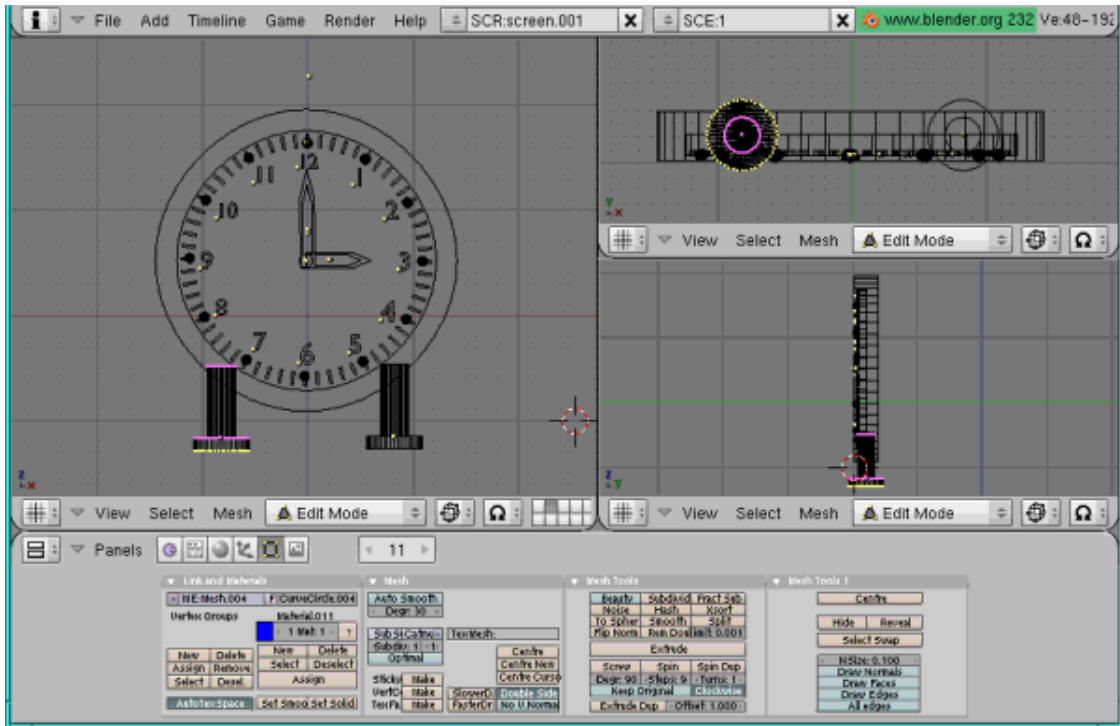
Give the whole case a blue colour (go to the material button, press "add new" and move the colour sliders to R=0,G=0, B=1).

Then select the two inner circles in the front (press a to unselect the outer circle and then b and mark the inner circles with the mouse). Give them a transparent material: Go to the edit buttons and press "New" and "Select", then go to the material buttons and press "add new". Click the Mirror Transparency button (next to Shaders) and click on "Ztransp". Then go to the Alpha button (you find it in the A field in the column under the RGB buttons). Give Alpha a very low value, close to 0. Then go to the edits buttons again and press "assign", then tab to leave edit mode.



The feet

For the feet you add again a Bezier circle (hit Space, Curve-->Bezier Circle) but this time in top view, then convert it into a mesh (tab to leave edit mode, then alt +c). Then you extrude it (press tab again to get into edit mode, then a to select all points and then press e) in front or side view so that it gives a tube (you could also have taken a tube and add the face by pressing shift +f). Then you select the end of the tube (press a to unselect all points and then press b and mark the lower end with the mouse) and extrude it (press e), then scale it (press s) so that it is wider than the tube. Extrude it (press e) and move it (press g) a little bit down as well. Place it under the case (press g), give it its blue colour (R=0,G=0, B=1), duplicate it (shift +d) and move it (press g) to the side. The feet are ready too.



The clock is ready. Here is a screenshot of the finished clock:



I hope you have fun creating it and as always: Happy Blending! :)

References

- The Official Blender site (here you get the latest information about the further development of Blender, you can download it, there are tutorials ..): <http://www.blender.org>

- Blender cafe (in English and French):<http://www.linuxgraphic.org/section3d/blender/pages/index-ang.php>
- General articles about 3D graphics and animation: <http://webreference.com/3d/>

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