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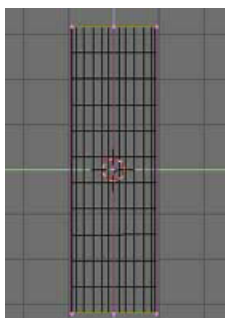
this document is online at <http://www.blender.nl/showitem.php?id=93>



id93

A candle is one of the basic light sources you will need in your scenes, especially when you situate them in the Middle Ages. This tutorial shows how to make the basic shape of a candle and a simple flame. It is supposed that you know Blender interface enough to insert objects and handle them.

I wrote this tutorial several weeks ago for Czech Blender beginners and this is the English version of it. Czech readers please follow [this link](#).

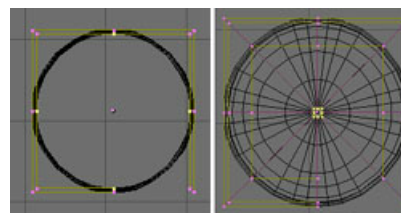


Modelling a candle

Start by adding a tube surface in the top view (**NumPad 1**) and make it extended in the right view (**NumPad 3**). You can do this by using box-select (**B B**) and selecting the top vertices. Next, drag the top vertices upward.

With the top Control Vertices (CV's) still selected, switch to top view (**NumPad 1**). Extrude by pressing **E** and scale them down with **S**. Repeat this three or four times. Please notice that the first extruded circle is only a little bit smaller than the outer circle for the wax will be thin here. Fix this state by pressing **Tab** twice.

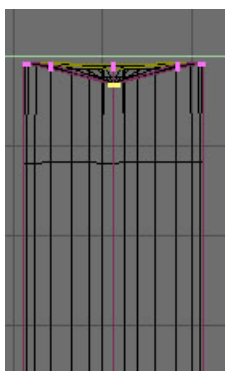
If you are in editmode and want to restore this state later press **U** but I am sure you knew this.



Using the magnetic tool

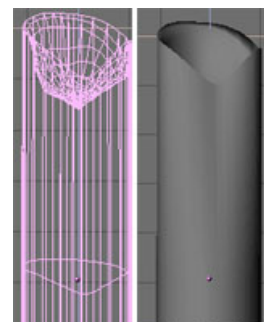
With the border select tool select the middle inner circle and press **O** to activate the proportional editing tool. This tool works like a magnet and when it is activated actions like moving, scaling and rotations affect not only selected vertices but unselected ones within adjustable range as well.

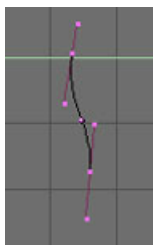
There are two modes for the proportional tool - a sharp falloff and a smooth one. You can switch between them by pressing **Shift + O**.



Switch to right view now and with the active proportional editing tool move the CV's down a little. Adjust the magnetic range with **+** and **-** keys

Now comes the creative part. By selecting and moving individual CV's with various magnetic ranges, create a crater shape typical for a used candle.





Making a wick

In right view add a bezier curve and shape it as shown. Next add a bezier circle in top view and name it by clicking on OB: field in edit buttons menu (FB)



Now select the bezier curve again and while still in the Edit Buttons window click on BevOb button and enter the name of circle (see above). The circle is now extruded along the path. By scaling the circle you can adjust the wick's proportions.

Materials

Let's add some material. For the wick I used a black colored material with Spec and Ref sliders on zero.

For the wax I used a material with the parameters that you can see on picture. It is a rather dark color we usually expect for the wax near the flame. This we will make up with lighting

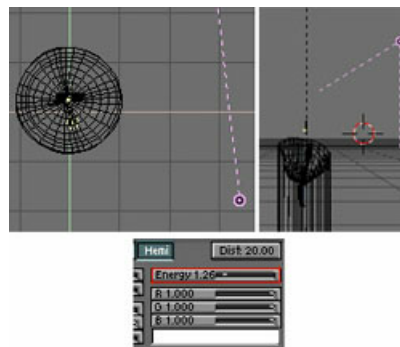


Lights

Add a lamp just above the candle and set it as you see in the picture. This light will simulate the light of the flame as well as giving the impression that the wax is hot around the wick.



The second light is of type 'hemi' and its position and settings you can see on picture again.



Particles for flame

To add a flame to the wick, set up a particle system. In top view add a mesh circle, scale it down to the wick size and place it where the wick meets the wax. Then in the Anim Buttons window (FB) click on NEW effect button then on Build button. Change it to Particles.



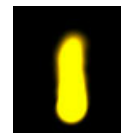
Here you'll find the settings for the particles. Buttons signed red are relevant. When you press **Alt+A** you should see how the particles flowing from the circle. But when you try to render it, it is still far away from looking like a flame.

Material for particles

To make the flame realistic we will create a suitable material for the particles. First select the circle emitter and add a new material to it. Set the material to a yellow color and turn the Halo button on. Then set halo size. I used 0.60 but it depends on candle size. You may have to try to render it several times to find right value for you.



Now the flame should have the right color but its shape is still not perfect. For a more flame like shape we have to use lpo editor to change the transparency of the particle during its lifetime. Because the life value for the particles is set to 50 we will make the material almost transparent for this frame. To do this leave the circle emitter selected and press **Shift+FB** or click on **lpo** button. The lpo editor will appear.



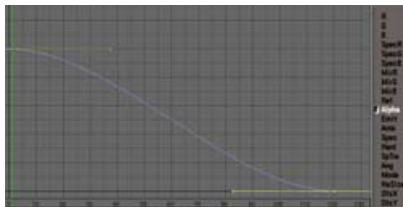
IPO settings

In the Ipo editor you can animate Loc Rot and Size of objects, [vertex](#) keys, sequences ipos and for us the most important for now: [material](#) Ipos. To switch to [material](#) ipos click on the image of the ball at the bottom of the Ipo window. In the left column you can see all the animateable [material](#) parameters. Click on the Alpha parameter for we want to adjust transparency for [material](#). The X axis now defines the frames and the Y axis the value of a parameter.



Did you know...

IPO stands for [Interpolation](#).



By pressing [Ctrl](#) [M](#) you can add new Control Vertices into the Ipo editor. Add two CV«s, press [Tab](#) to jump into [edit mode](#) and select first CV. Press [N](#) to activate number buttons and insert values LocX=0; Loc y=100. Handle second CV similarly. Values will be Locx=100, Loc y=0 so you«ll get mild gradient for alpha. Jump out of [edit mode](#) now and [render scene](#).



When creating IPO's for [particles](#), each particles' lifetime is mapped onto 100 frames in the IPO editor. So even if your flame particle only lives for 50 frames, make sure that you define the alpha [curve](#) from frame 1 to frame 100.

Final result!

That«s all. For better results you may play with the [material](#) settings and [particles](#) settings. You can also add one more particle emitor with slightly different settings from the first flame and add to it smoke [material](#).

This tutorial is translated from czech original on server www.grafika.cz.

