Character modelling

Hallo, dear fan of cartoons,

You want to create your own cartoon. Good choice!

I need about six hours to create my character, modelling, rigging, texturing, so she is ready for Animation. There are a lot of Tutorial in the internet, they build a beautiful character. But for this character you need a lot of time, persistence and profound knowledge in blender. If you have all of this build the perfect character. If not maybe try first this one.

Six Hours? This is because I build about 100 of them. But if you build them the first time and you have only knowledge in blender you can build them in three or four days.

If you want to create quick a passable cartoon you con use my character. This is the intention of my tutorials and this script. And you do not risk to throw your computer out of the closed window.

Why we build the head not from a round cube, like all in the other videos. Our character is a compromise, and so the triangles on the top and bottom of the UV sphere do not disturbance.

You should have a few knowledge in modelling and material, but do not worry, not to much. And so, let us start.

The Face (Head)

The Head is the most difficult part of our character. The face should look nice and she should speak and have a mimic.

We add a UV sphere in Object Mode in the scene of the 3d-Viewport. We work in front (Numpad 1). In the x and y axis we scale (S) the sphere down of 0,8. Then we change to Edit Mode (Tab-Button). The face-loop right over the middle we scale up to 1,8 in the z-axis. With N we open the properties-panel in the 3d-viewport, item. Here we set the z-value of the edges down of this face loop to 0. In the Outliner we can give the UV-sphere a name.

In the wireframe-view (Z) we choose the faces on the top, maybe with the box-select-tool, scale the faces down in the z- axis to 0,8 and go back to the solid view (Z).

We count the edge loops down from the middle and stop at the fifth loop. The Value of the z-axis should be about -0,83. We set them to exactly -0,83. The edge loop and the single vertices down should get the same z-value.

We activate the faces down, maybe with circle-select (C).

Faces down   S x 0,6   R x 7
next edge loop from down (-4)   S x 0,74   R x 5
next edge loop from down (-3)   S x 0,8   R x 3
next edge loop from down (-2)   S x 0,86

next edge loop from down (-1)   S x 0,96
loop will be activated by left mouse and Alt.

Now we want create the chin. For this we set the two edge loop in the middle, from the first loop under the middle until down to a common value -0,98.

Now we need a modifier, a mirror modifier. But first we deleted all the faces on the left side. The best way is to do this is in wireframe-view and with the box-select-tool. Look, from the top (Numpad 7) and bottom (Numpad Strg 7), that all the tiny triangles a really chosen.

In the properties-panel on the right side, on the spanner-symbol, we add the mirror modifier. All the work we done on the right side will be done now automatic on the left side. For many work Clipping on is very helpful, we can activated Clipping in the panel.

The next modifier we add is the subdivision surface modifier. He smooth our geometry. In Object Mode we activate our Head and then with the right mouse side we change to shade smooth. The head get more smooth now. At some work the subdivision surface modifier disturb us. We can shut up the the modifier with the monitor symbol in the properties-panel. You see also there are activated level 1 in the viewport and level 2 in rendering. In rendering we use also only level 1, that save computer power for rendering.

Now we want to get a better chin. So we must push some vertices. The vertices on side down by the chin must push forward, but so we get a new nice curve. If you have really ambition, you can handle this also with the vertices down (Numpad 7). Test the look with the subdivision surface modifier and smooth in the front and the side view.

Our Head need anything, eyes, nose and mouth. For this we need more geometry. We create three loop cut vertical in the three face loop from the middle.

First we build the eye socket. For this we need a loop cut in the faces over the middle. Then a loop cut between the latest loop cut and the loop over them. After you create them go quick back to the Box-select or move-tool.

The eye will be created by a Cylinder, add cylinder in Object Mode. The eye will be not a solid part of the body, so we build them separate. When we work on the eye, we can switch the head with the eye-symbol in outliner for the viewport out.

We scale the cylinder down 0,1, then in the z-axis to 0,15. The eye will be rotated by the x-axis 90 degrees.

We build iris and pupil. In Edit Mode we activate the circle on the top.

E Esc S 0,7   and   E Esc 0,34

We change to the wireframe-view.

With box select we push the vertices on the left to the left and right to the right, so we create a tunica.

The Head will be visibly in the viewport, we put the eye on the face where it should be. Until now mouth and the nose are not made, because that the position is not exactly. But this make no matter. We make this later.

But the new create edge loops over the middle should be over the eye. We push the vertices from this edges with double G, so we get two curves over the eye. From the vertical loop cut we have now six smaller faces. The next, seventh, bigger one is also part of the eye socket. In the next, eight, the geometry will be push in. The next, the nine, will be stable. The eye socket will be smaller to the side, so the vertices on the top of face seven and eight will be also push down with double G.

We choose the seven faces from the middle over the middle and push them in the head, test it with the subdivision surface modifier and Smooth.

Now it is up for the nose. Clipping in the mirror modifier should be activated, else we get a bump in the nose. If something happens with the geometry there are a good spot to looking for.

The two faces right from the middle down from the middle are the basis for our nose. We push I and pull the faces a little inside. We are not absolutely happy with the result. Now we get also a bump in the nose.

Down left in the viewport is our latest order. In this case – I -. In this drop-down-menu we deactivated Boundary. Perfect.

The two vertices down of the two faces of the nose must be put with G G so close as possible to z -0,23. Then you can set the value -0,23 in the box. With G G we move exactly on the curves of the sphere.

The two vertices on the top of the nose we push to the middle. Now we select the two faces of the nose and extrude two times with 0,002. Two times because of the smooth with the modifier. In the side view we push the face down of the nose a little bit forward. Then we select the edge down in the middle and push them also forward and maybe a little bit up.

The mouth is really difficult. First we need a loop cut in the third face loop from down. The three faces from the middle up from the new loop and the three below are the basis of the mouth. We select this six faces and push I and pull the faces together. Two third of the faces should rest orange. Boundary should be deselected. For our mouth we move the vertices, also with G G, in the form of a mouth.

Maybe geometry disappear in our head. Then we must push them soft back out of the head. Test the view from the front and the side.

Until now we have the border of the lips. We need this edge loop and three edge loop more. This will be available step by step. Each time we push I and the we pull the vertices to the middle. At least there going a few lines of edges sloping to the centre of the mouth. And also at least at the fourth edge loop there are still small faces in the middle. And this faces we deleted.

We can now move the edges and the vertices to improve our mouth. So maybe our mouth can get smaller to the right.

We form the vertices around the mouth to a circle. Then we add a loop cut between this circle and the mouth and push this new edge loop in the face.

The faces of the lips will be extruded 0,01. Then we select the second and the third edge loop of

our mouth. In the side view this edge should be push out until we get a good mouth. At least the big face beyond the nose in the middle will be push a little bit in the head.

Now we have the eye socked and we can lay the eye exactly there where it should be. Maybe we scale it down.

The eight faces beyond the eye should be selected, we command I and then we pull the geometry a little inside. The vertices of this new geometry must be put around the eye, also with G G. At least we have a eye on the head beyond our eye. This faces we deleted. It is also important at all the work here to have exact lines or curves. It is bad to have interrupted structure in the geometry.

We select the edges of the border from our deleted faces. In the side view rotated a few in the x-axis so the loop get a little plan with the head. We extrude a little bit and then we scale down 0,8, we extrude a second time and then we scale it down to 0,95.

In object mode we push the eye in the eye hole, rotated around the z-axis. In edit mode from the eye we see if iris and pupil are in the middle of the hole.

The eye brows coming from the faces up of the eye socket, select the faces, command I, pull the faces a little smaller, push the vertices with G G in form and extrude two times with 0,004.

All work we want to do on booth sides are done. Now we can apply the mirror modifier in object mode in the panel of the properties, use there the drop-down-menu. Apply.

There are a plenty of hair styles. I use here, to explain them, witch I have got. There are one face loop free from the eye brows to the hair. We select all faces up in the wireframe-view. We change to the side-view and add there all the face until the middle in booth direction. Extrude 0,02. The edges down of the new geometry we scale up to 1,05 an set them in the z-axis to 0. The three edge lines from the new geometry up we scale up to 1.04. Now we select (it is useful to switch the modifier out) the faces of the bottom of the hair an extrude 0,2, again 0,3, this time we scale it down to 0,95 and push them a little bit back. We extrude again 0,1, scale it down 0,8 and push them a little back.

My strand is made from a Bezier-curve. This Curve get a depth in the properties (curve-symbol). In edit mode we subdivide the curve and modelling the strand. Under object (left in the header of the 3d-viewport) we convert the curve to a mesh.

If we look on the properties panel, item, dimension, we see our head is really big. And also the eye. Later this items must be scaled down.

The hair can get a simple material from the material panel in the properties. And this is a good Moment the hair get a material. We will join head and body later, and then it is difficult to select the faces of the hair. This means not this is easy now.

In the material panel the faces get a light orange colour. Specular get down and roughness up. The material of the head get a name in the properties. In a second step we select the faces from the hair give them the material, the name of the material, and then we command assign, so the faces get this colour.

If we want to give the hair a texture this is also the time to cut of the geometry of the hair, to unwrap later the geometry. The first step is to give the hair the material. Then we marks seams in the edges. But this subject in texture part of this script.

The hair is ready, the head is ready.

The Body

In Object Mode we add a cube, we scale them down x 0,8 and y 0,6. In edit mode we subdivide the cube 3 times. The Cube get a name in the Outliner.

In the first face loop up from the middle we need a loop cut.

The faces on the top scale we down to 0,9, push them a little bit back. Then we scale it down in the x-axis to 0,8.

The next two edge loop we scale down only in the x-axis, S X 0,85.

The next loop is the fourth
4 Loop from the top   S   0,84
5 Loop   S   0,8
6 Loop   S   0,76
7 Loop   S   0,7

With the next loop the buttocks begins. The next loop come in the side view to the right.

8 Loop   S   0,62

This loop must also scaled up in the y-axis.
                        S   y 1,1

 9 Loop   S   0,74
                        S   y 1,05
Faces down   S   0,8
                        S   y 1,05

The faces in front we scale in x to 0,74. The next edge loop to x 0,86, then the next x 0,96. On the back we scale the Faces x to 0,74 and the next edge loop to 0,92

The faces on the top will be soft push up in two steps. The latest faces line are free. The next six faces in the middle are the ground of neck, three of each side. We extrude this faces 0,05 and scale it down to 0,95. The body get later a subdivision surface modifier, so the geometry get be rounder. But when we push the vertices in the corners to the middle of the geometry get even rounder. Then we extrude again 0,25, scale it down 0,9. Because of the subdivision surface modifier we need a loop cut horizontal in the latest geometry and we pull them nearly to the top of this geometry.

The four edge line on the top in front must be push in the middle and down. To get a good result maybe we need a few steps at work. And the edges on the back must be also forward and down.

Our body must be get rounder. The faces in front below the breast must push out in three steps, the faces on the back also.

And the body can get a little smaller. The four edge loops below the breast can be scaled down.

Strg and 7, the beginning of our skirt. This geometry must get more equal in width. Some edge in the second line must coming out. And the vertices in the corner a little bit in the middle.

We deleted all the left faces and in the properties-panel we add a mirror modifier.

Then we add a subdivision surface modifier.

The arm will be created from the six faces on the top of the body. The latest line of faces are free. We scaled this Faces of s x 0, this faces are plan now, then we push the faces out of the body until we can see the edges. We extrude 0,04. The three edges down of this new geometry comes a little up. The four vertices in the corner comes in the middle.

The work on the arm begins.

3 times E 0,25 , S 0,9 ,
E 0,45 ,   S   0,8
2 times E 0,1   ,   S 0,95

Here comes the ell. E 0,65 and S 0,9.

And now the hand.
E   0,05, E 0,1
We change in the side view.

From the faces top left we get the forefinger. Extrude 0,5. We move the inner edges back from the other faces. The dump comes from the middle face down. Extrude 0,5. We move the inner edges back from the other faces. The three other fingers come from the two faces top right. Extrude 0,5. We move the inner edges back from the other faces. We extrude the forefinger and the three other fingers 0,2, the dump with 0,14.

The arm joint must be smaller. We selected the two edges loop around the joint and scale it down. And the Shoulder must coming up. Test it with the subdivision surface modifier and smooth.

I need also legs, Ctrl and 7. We select the 12 faces in the middle (4 length, 3 side). For the next command, Clipping for the mirror modifier should be deactivated. Extrude 0,05. The edges left and right of the new geometry comes a few to the middle. The leg get even rounder the vertices in the corner comes a few in the middle. Another time we extrude 0,05 and scale down 0,8.

The leg.

E 1 , S 0,8 , E 0,1 , S 0,95 , E 0,1 , S 0,95 , E 0,8 , S 0,8

The Food.

E 0,1 , E 0,15 , E   0,1

There are many ways to build your own food.

Here comes my food.

The three faces in front the second from down will be extruded 0,2. scale down in z-axis 0,8, push them to the ground, extrude a second time with 0,2, scale down to 0,6 and push them to the ground.

The Food is ready. The skirt is the next part.

We apply in object mode our mirror modifier in the properties.

We go in the bottom view and choose the faces outside, this is the beginning of our skirt. Extrude 0,2. We select the edges outside our new geometry and scale it up to 1,05, the edges inside of the new geometry comes up to 1,2. The Vertices inside in the corner must get a few in the middle. We change again to the faces down. Extrude 0,3, scale 1,05 and again extrude 0,1. The skirt should be not so long, because the skirt influence the animation.

The body is ready.

What are we doing in the second part of the scrip?

We must join the body and the head. He will get bones, so we can them animated. And he needs Colour. And so he get Material and Texture. And we create a world around him. And then...?
Let us started. We animated our character and we have our cartoon. Good luck   Cerise