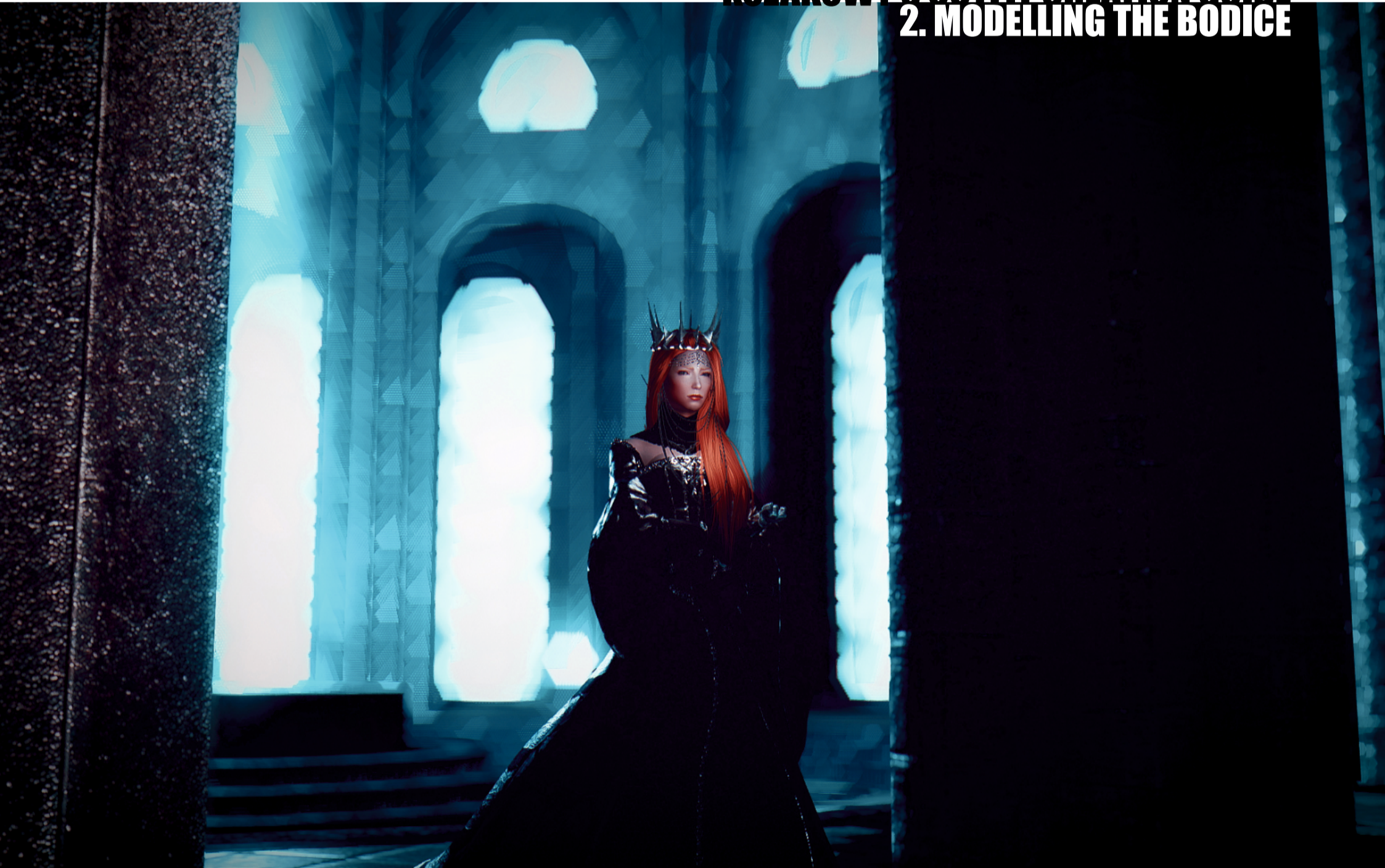


**KOZAKOWY'S OUTFIT CREATION GUIDE**  
**2. MODELLING THE BODICE**



### Introduction

This time we're going to talk a bit about my **modelling workflow**. We're going to model a simple **bodice** for one of my current projects, to be more precise, and we'll talk a bit about every step.

### Before you start

Let's start with the **basic body setup** (fig.1) we did in part 1. **The Setup**. Please refer to the previous tutorial if you don't know what I'm talking about.

I also assume you have some basic knowlegde about how to find different functions and settings in 3dsmax. I'm going to explain the basic stuff just a bit but I'm not going to go much into details.



fig. 1 Our basic setup

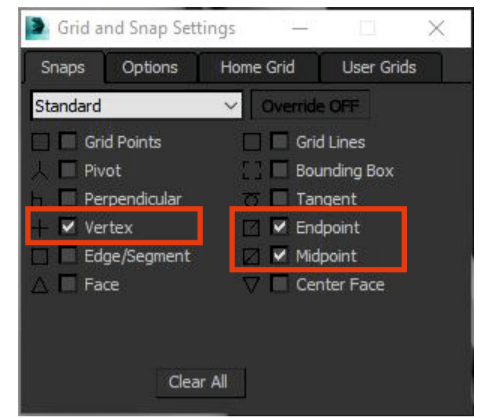


fig. 2 My snap settings

### The starting shape

3ds max is a **surface modelling tool** and the workflow usually means that you start with a kind of basic shape or spline and edit it until you get what you originally wanted. It also means that a 3d form you model is **hollow inside**. The Skyrim's Creation Engine also works with geometry like this.

To start a new shape I usually use a **Box** button. Why? Because a box has got walls (polygons) facing all three basic axis - x y and z.

For starting a bodice I like to place a box somewhere around the waist. For this I turn on the **Snap 3** (full 3d snap option) toggle button on. By right-clicking it I open the Snap Settings window and check the **Vertex**, **Endpoint** and **Midpoint** options.



Other options aren't that important to me. I sometimes use **pivot** option but very rarely tbh. With this set up, I can switch the snap on and off using the default **'s'** hotkey.

Now I can easily create a box snapping to a certain area of the body and having the shape merely aligned (fig. 3). Then I turn the Box to **Editable Poly** by right-clicking it in the "modify" side-panel (fig. 4). When the Editable Poly is created, I remove all the walls except two - the **front** and the **right** one. Remember you can invert your Edit Poly selection by usins **ctrl+'i'** key combination (fig. 5).

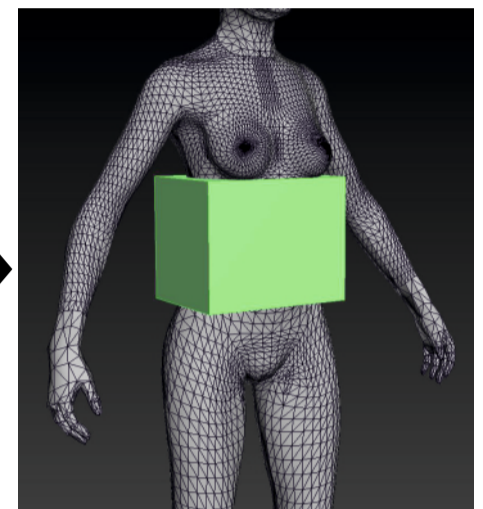
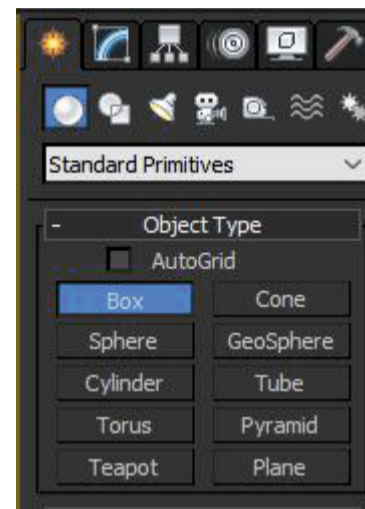


fig. 3 Creating a box

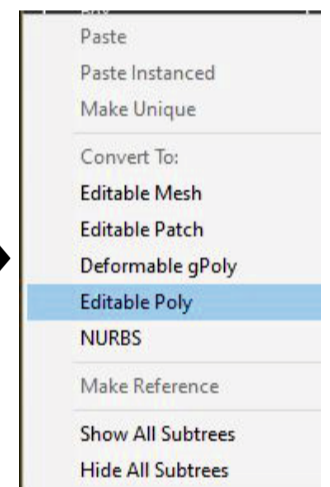
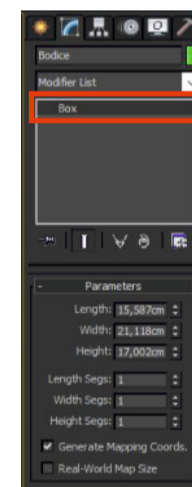


fig. 4 Conversion to Editable Poly

### The anatomy of the garment

Now we're going to place the three vertical edges in the place of three main **anatomical lines** as far as tailoring is concerned. These lines are called:

1. center-front
2. side-seam
3. center-back

These three are often the main reference lines in constructing garments. The **"center"** lines will be also the mirror of symmetry in most cases. I like to work with edges in general. In modelling smooth free forms like clothes there is also a lot of points editing. But in sewing **edges often mean seams** - it's nice to remember also in 3d modelling.

You may need to use **axis constraints** toolbar to turn on the axis constraints for x y or z to move the edges to the desired places. If you turn on the axis constraints toggle on you will be also able to choose the desired axis directly on the **transform gizmo**.



You can find the center of the body by just looking at the edges on the body model in a **top view** or just placing the edges on **x=0,0** value. The side seam should be somewhere under the arm. I often tilt this line or move it a bit to the front - depends on the garment design (fig.6)

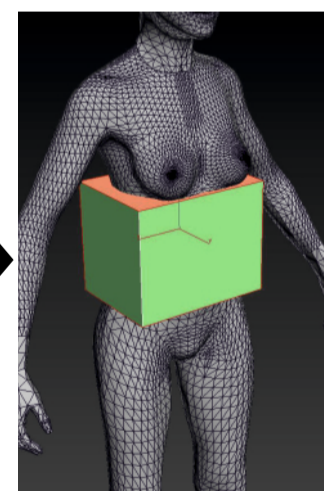
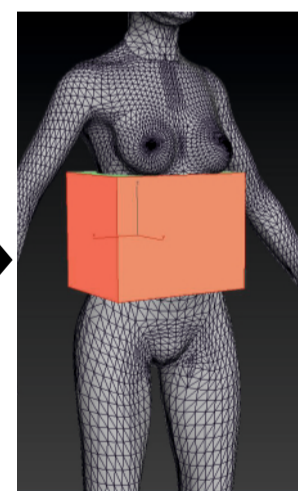
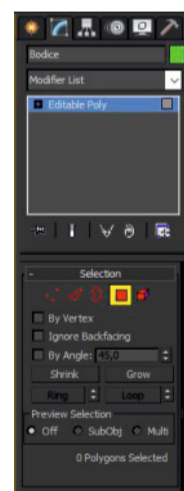


fig. 5 Removing the excess faces

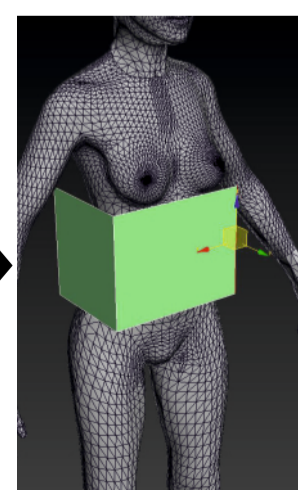
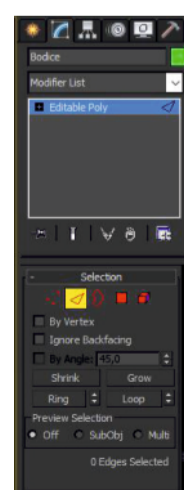


fig. 6 Placing the main edges in the right places

### Refining the shape

When the lines are properly placed, you can add some more horizontal lines by using **"Connect"** function (fig.7) Also ring and loop options come in handy in the **Editable Poly** rollout in the Modify sidepanel.

I added a **waistline** and placed it where I want to have the waist in my design. Using the **Ring** commands I'm selecting sets of edges and connecting them getting a new iteration of edges. Then I move to **editing the points** and try to create a rough very **low-poly** model of my design (fig. 8).

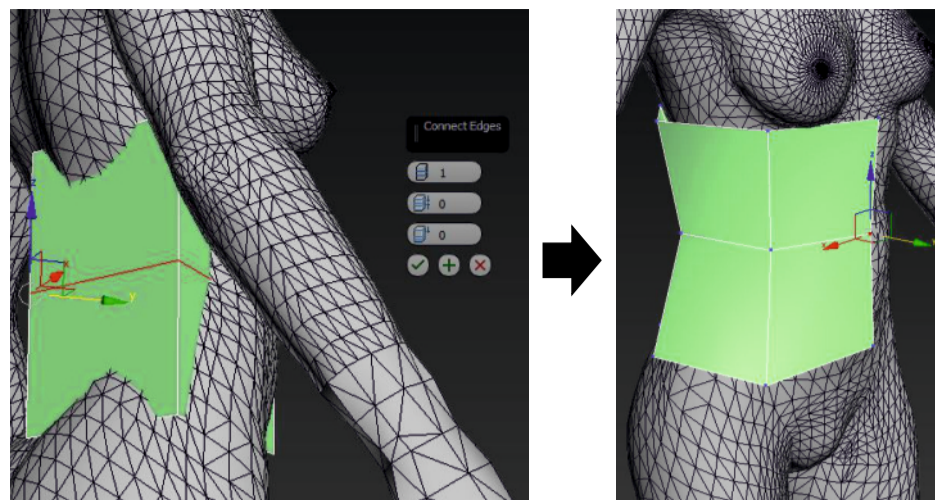


fig. 7 Adding a waistline

Now I'm instantly inserting the **Symmetry** modifier above my Edit Poly with the mirror placed in **x=0,0** and **"x"** option checked. You may have to flip the mirror if the symmetry modifier is making the object disappear (fig. 9).



Then I add a **TurboSmooth** modifier (fig. 10) above my Symmetry mod, and we quickly have a smooth, more **high-poly** shape out of our simple low-poly form.

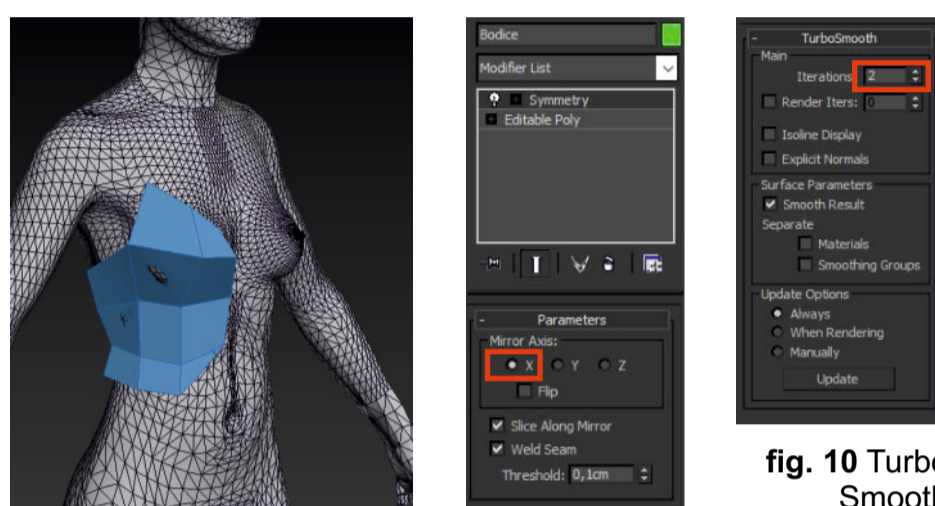


fig. 8 Creating a rough form

fig. 9 Symmetry

fig. 10 Turbo Smooth parameters

Now I go to the bottom of the stack to my basic edit poly and turn on the **end result toggle option** to see both my basic mesh and the final effect of my modifier stack (fig. 11).



Now I can **move my edges and points** to get the desired shape. also I'm adding some more edges (**hold shift while moving an edge**) to create cups and I'm forming the bodice getting narrower at the back. I switch to editing points to refine the design (fig. 12)

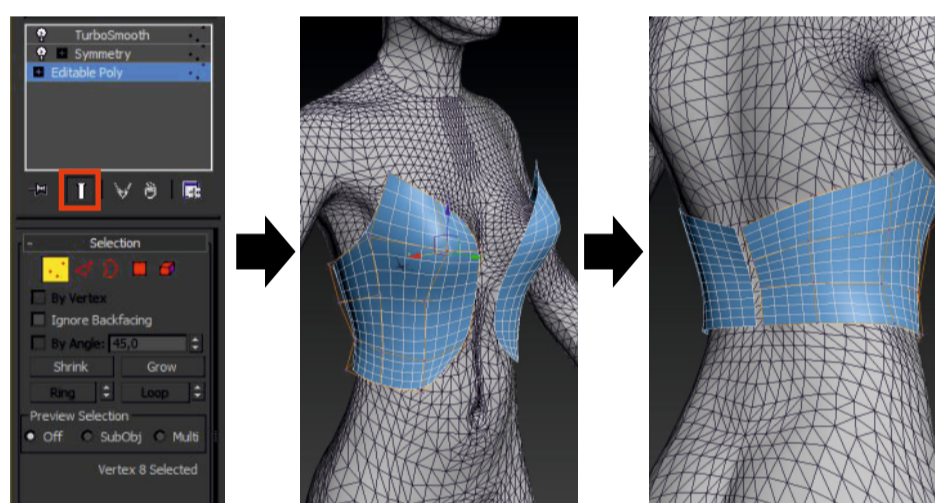


fig.11 The end result toggle and preview

What is important at this stage is to remember about keeping the center verts at **x=0,0** otherwise you'll get a hole there. In this case the hole is intentional since the design is like this, but when you want to create a full form, you have to remember this.

This way you can control the final smooth mesh with some very few basic points - it's nice to keep the modelling this way without collapsing the stack since it's perfect for quick edits :)

Also keeping the mesh made out of **quads** (rectangles) is quite crucial, since it's easy to work with them in 3ds max. Of course some shapes need **triangular** polygons to create transitions but they also can be converted to quads.

### Adding Thickness

Ok. we've got the basic bodice shape ready and smooth.

At this stage I like to **add thickness** to the form by inserting **Shell** modifier at the top and defining the inner amount value. Also here it's very important to check the edge mapping type to **"strip"** (it will automatically **UVW unwrap** the edges for you).

I tend to **delete the inner part** of the shell since in most cases I only need an **illusion of thickness** at the edges of my outfits and I like to get rid of some excess polygons that aren't really seen and can cause problems with rigging. I use **Select inner faces** in Shell mod and a **Delete Mesh** mod above it (fig. 13).

The idea is to **keep it simple** and as low poly as possible. Do high poly only if you really need **details or very smooth curves**. For example I'm often modelling cords with a square section and **smooth modifier set to group 2** - it creates a perfect illusion of a smooth cord and it's also pretty low poly.

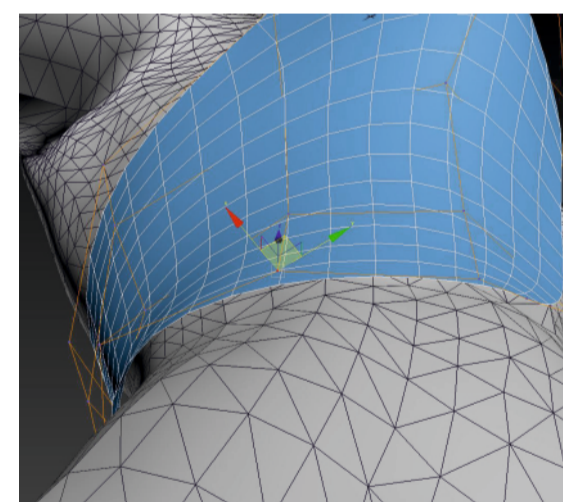


fig.12 Refining the shape and bringing it closer to the body

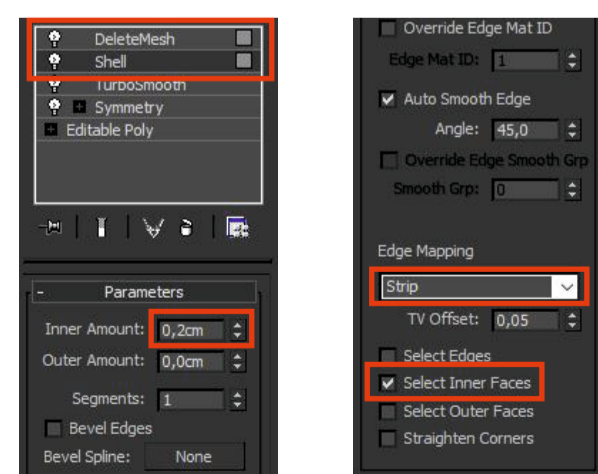


fig.13 Adding thickness to the mesh by using Shell

### Modelling the linear details

In the design of this particular bodice I've got some metal **linear details** in the decollete area.

I thought the easiest way to model them is to draw some lines - in this case I started with a **Circle** and turned it to **Editable Spline** and edited the lines to create the desired shape (fig. 14).

I also added some **Triangles** as the side loops for pulling the pendant through them.

Finally I stole the pearl from one of my older projects ;) and drew the pendant (fig. 16).

You can switch the points modes from **Corner** to **Smooth**, **Bezier** or **Bezier Corner** by right-clicking the spline points.

Of course I used the **snap** function to fit the lines in between the bodice parts and the body.

Then I'm using the **Sweep modifier** to turn the lines to geometry. I set the section type option to cylinder. I set the interpolation steps to 1 to keep the section low poly and adjust the radius as desired (fig. 15)

What is important here - remember to check the **Gen. Mapping Coords.** option since it will make the **UVW mapping** much easier.

You may have to **edit the points** more to refine the final look but the process is quite easy. (fig. 17).

### The back lacing

Usually bodices, tops and preastplates have some kind of fastenings. I mean **zippers**, **buttons**, **buckles** etc.

In this case I did a simple **back lacing**.

I use exactly the same steps to model the back lacing. First I **draw the lines in 3d** and secondly I use **Sweep** to turn it into geometry and add a basic **UVW mapping** (fig. 18).

This process is very straight-forward and easily editable. Of course in the end you will have to collapse everything but do keep always an editable, non-collapsed version on your hard drive.

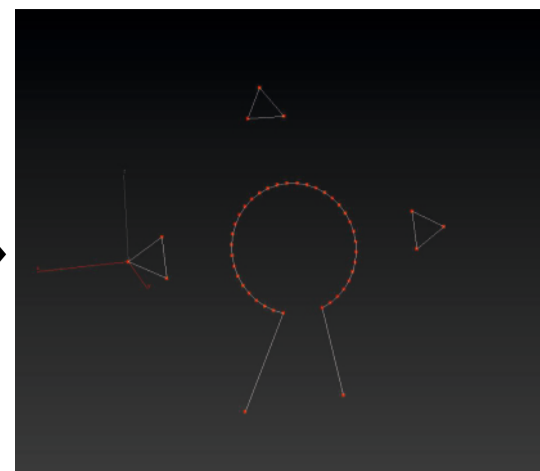
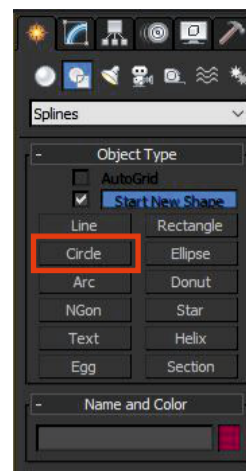


fig.14 Creating the lines and defining the shape of jewelry

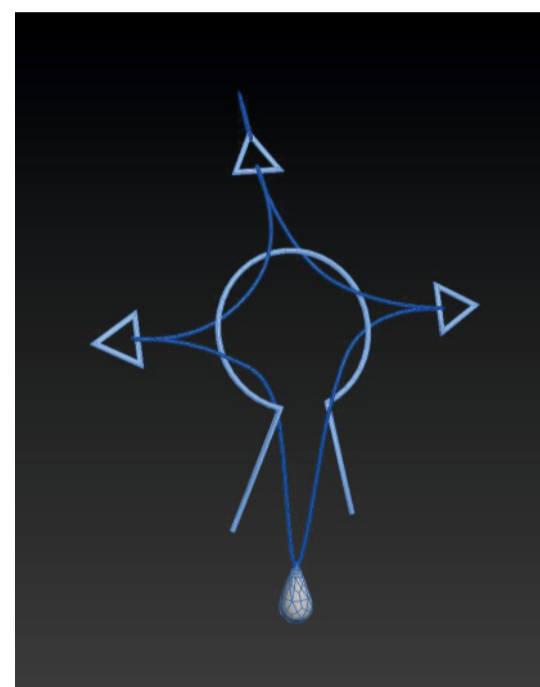
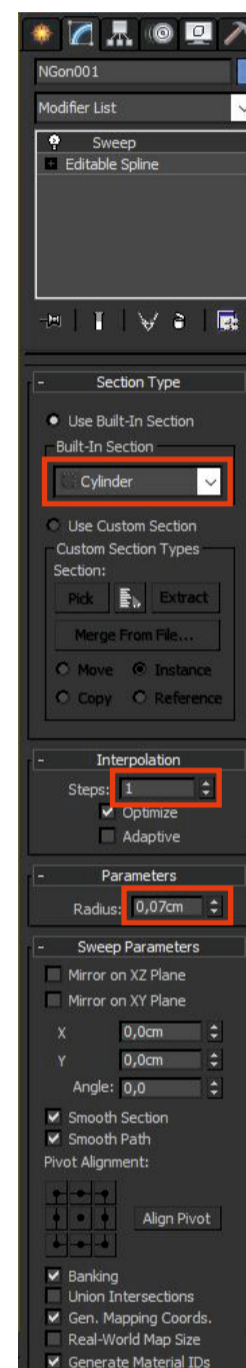


fig.16 The result of the Sweep mod

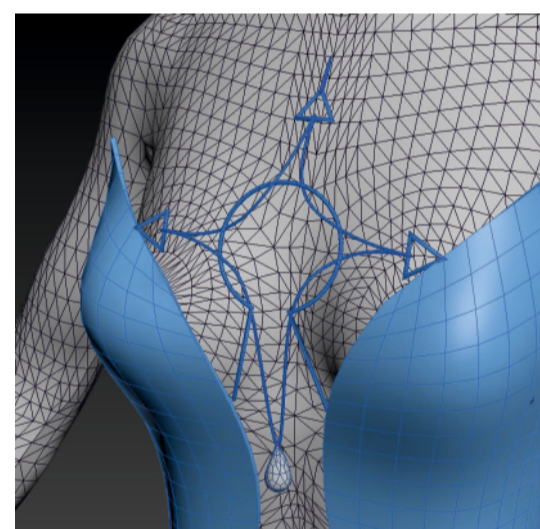


fig.17 The final fit

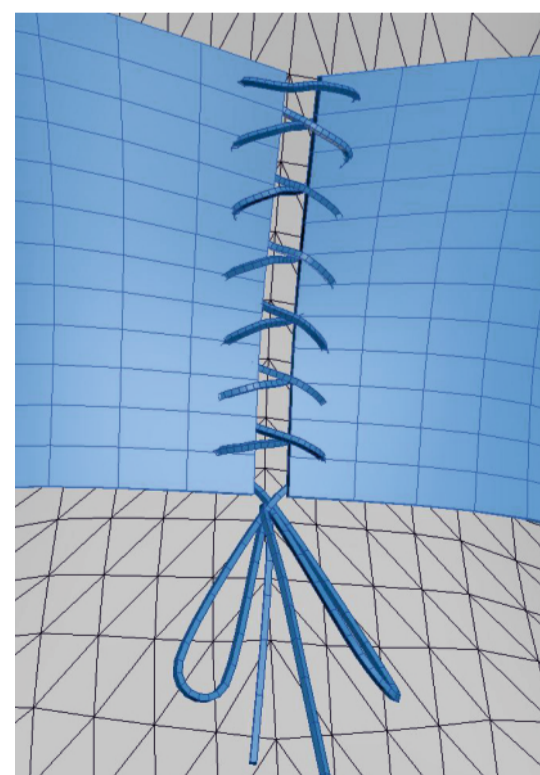


fig.18 The backlacing - same principals

### Body adjustments

This particular design has got quite a lot of **bare skin** visible. I want also to adjust the **bust area** a bit to appear more **push-up** and **push-together** than the standard UNP slim one that I chose as my base model.

To start these adjustments I'm going to **duplicate** the UNP body shape (**ctrl+v** - **Copy option**)(fig. 19) and **remove the Skin modifier and BSDismembermentMod**.

I'm going to hide the original base body by right-clicking it and using **Hide Selection**.

Then I go down to **Editable Poly** modifier and set up the **Push/Pull** tool (fig. 21).

Probably the most convenient way to do this kind of adjustments is to open the **Brush Options** window (fig. 20) and check the **Mirror "x"** option. This will allow you to alter both the right and left side of the model simultaneously.

After a while of **Painting, Relaxing** and **Reverting** the cleavage looks quite satisfactory :)

For more drastic changes in this area I use also **point edition** with **Smooth Selection** option. But in this case only minor changes are enough (fig. 22).

### To sum up

This was a brief presentation of my tips and tricks that might help you create your own bodice a top or a breastplate. Of course 3ds max is a software that allows you to do the same thing in many different ways. So this workflow is only one of the possibilities.

Well, wish you good luck with your projects. Hope all this makes sense and will be helpfull to you. Do not hesitate to ask me anything via the Patreon messages section if you have any questions. :)

We'll move on to some more modelling hints shortly.

Thanks for supporting my projects so wonderfully.

Yours,  
K.

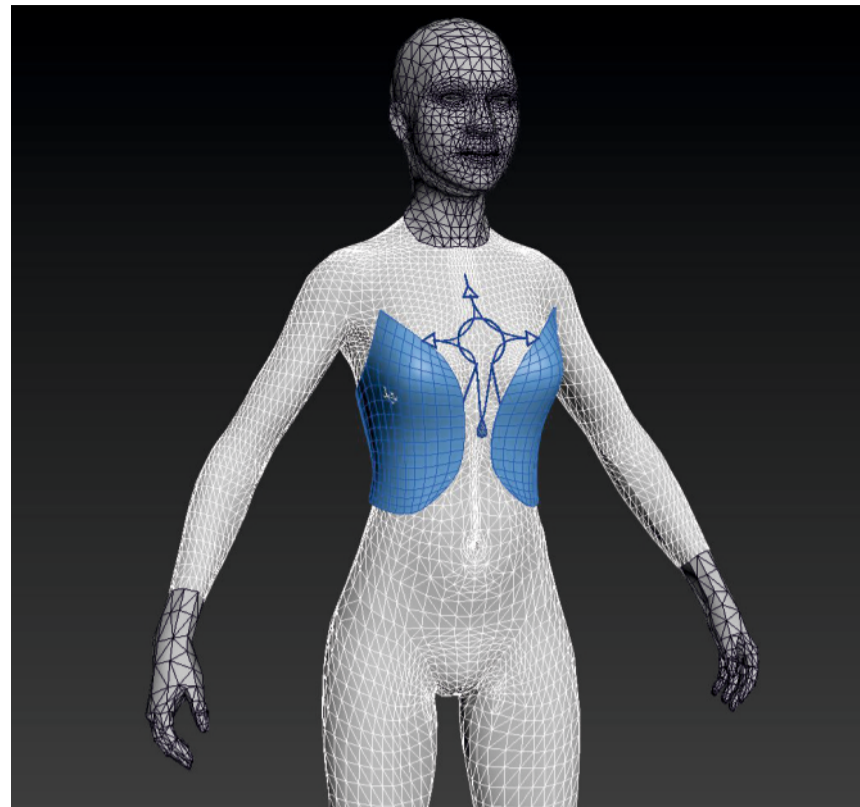


fig.19 Copying the body shape and hiding the basic one

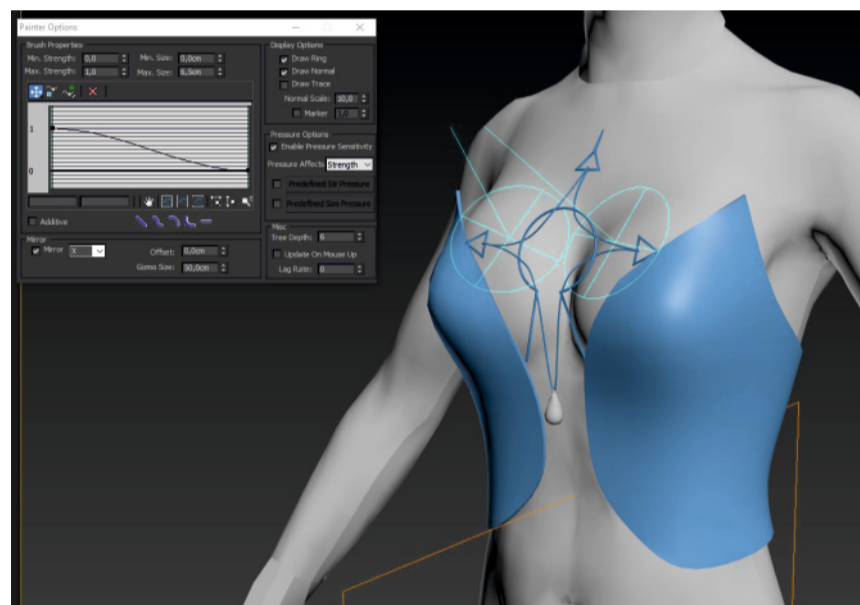


fig.20 Using the Push/Pull brush options to mirror the strokes



fig.21 Push/Pull params.



fig.22 The end result