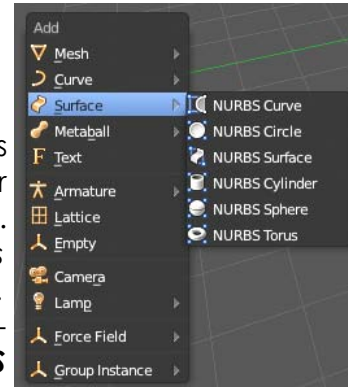


Chapter 11-NURBS and Meta Shape Basics

When you press "**Shift-A**" for "**Add**", you will notice other object types beside meshes, cameras and lights that can be created. Two types of objects that can be created are **Surfaces** (NURBS) and **Meta Objects**. A lot can be said about surfaces, but for this tutorial, I want you just to become aware that they are there and describe some basics about them. Meta objects have been expanded to a variety of shapes and can be used to give you a "liquid metal" effect where the objects "pull" together as they become close to each other.

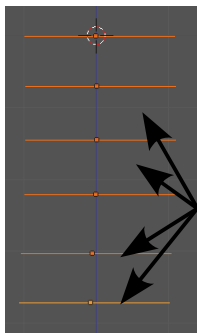
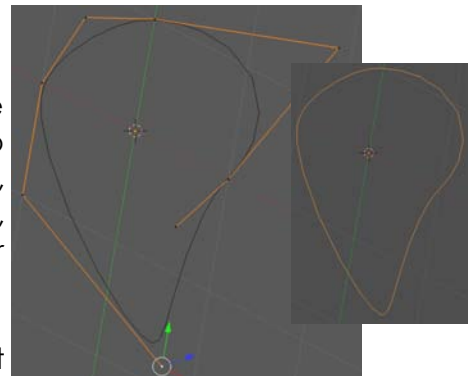
Using NURBS to Create Lofted Shapes (surfaces)

If you look at the **Surface** menu, you will see a variety of shapes that can be created. These shapes can be use as they are or converted to meshes so you can work with traditional verticies. *To convert a surface into a mesh, select the object and press the "Alt" and "C" keys and choose the appropriate option.* You can do a lot with NURBS and there are several tutorials on-line describing them, but for now, we will just work with a **NURBS Circle** to create an interesting looking tunnel.

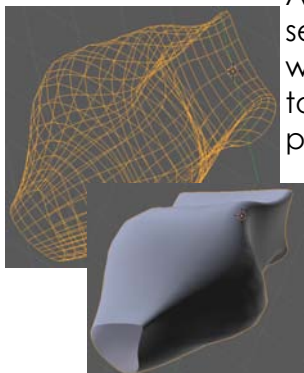
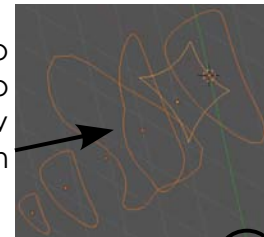


Creating a Lofted Tunnel

This process will take several profiles of a NURBS Circle and connect them together. First thing you need to do is create a **NURBS Circle**. To do this, press "**Shift-A**", select "**Surface**" and "**NURBS Circle**". In Edit Mode, select the points and shape the circle a bit. After shaping, exit edit mode.



Change your view so you are looking at the edge of the circle (*try front view if circle was made in a top view*). You may also want to switch to a wireframe view. Use the "**Shift-D**" keys to duplicate the circle several times. Then rotate your view so you can select each circle and edit the shapes in **edit mode** (Tab key).



After shaping the circles, exit edit mode and select them all by RMB clicking on them while holding the "**Shift**" key. To join them together, press "**Ctrl- J**". For the final step, press "**Tab**" for edit mode, "**A**" to select all verticies, then "**F**" for face. Your result should be a lofted object. You can control the detail of the shape in the "**Object Data**" panel. If you need it to be a mesh, press "**Alt-C**". This is a great technique for making boat hulls and other related items.

