Blender Tutorial Guide – a quick way to master Blender

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This text will provide a guide through the many Blender tutorials which should familiarise you with many modelling and some animation techniques in a quick way, without having to go through useless or repetitive tutorials. Furthermore, I will add some small corrections to unclear tutorials.

Just as many other people have said I have found the Blender user interface not to be very intuitive. Fortunately, the website of Blender provides a number of useful links to tutorials that can help you in getting familiar with Blender.
The Blender website contains a section Tutorials & Help. If you click this, a link labelled "Blender Quickstart" will probably catch your attention. Click this and you will find a page containing links to 3 tutorials dealing with basic concepts of Blender such as navigation in the interface. In my opinion the User Interface Tutorial and Navigating in 3D Space are a good place to start, but the Blender Windows tutorial isn't very helpful.
Now you should have some understanding of the Blender interface and it's time to start learning about the creation of actual models. Click Tutorials in the menu and you will see a list of tutorials on various subjects. The number of tutorials on this page however, is rather limited. Unnoticed by you (or at least by me at the time), a new layer of menu options will have appeared underneath the other one which contains links to the full lists of tutorials on a certain subject. Click the Getting Started link to find yourself a list of useful beginner tutorials.
The first tutorial, Blender 3D: Noob to Pro is an e-book containing a whole sequence of tutorials which are very useful to extend your knowledge step by step. You can start here (I will give some comment on less useful tutorials which you might want to skip below, since the e-book is very large (and repetitive in some places).
There are some other useful tutorials on the page as well however and some of them might be a good place to start. The results of these tutorials will at least be a lot nicer than the first few tutorials of the Noob to Pro series and provide some insight to different modelling techniques (of which Blender has quite a few) and the use of textures and basic lighting as well.
So, where to start then? The Winter Scene is probably the best place, the result is nice and the techniques are quite simple. The Hillside tutorial is a nice short tutorial that should allow you to make interesting environments for your models quickly at a later stage. If you're interested in spending some time to get something more complex then a snowman made out of spheres you could try to make the dolphin, which might seem complex given it's shape, but by following the tutorial it will be doable at an early stage, it was the second model I made.
Important: *There is a missing step in this tutorial, after you have created the lattice you should scale it to the size of the sphere, otherwise, you're dolphin will look very odd.*
The Die tutorial does not add a lot of new things, another way of creating a die is discussed in the Noob to Pro e-book as well, but the tutorial teaches you how to apply two different textures to one object as well. *Note that "go to the materials section of the EditButtons screen and hit the 'New' button twice" is not the same way to add textures as you have done before (by clicking Shading(F5), instead, click Editing(F9), this is where you will find the new button (two actually, click the one under Material).*

Now, the Noob to Pro e-book. Open the e-book and you will get an overview of the content. The book is very large, so I will try to guide you through it without making you do redundant steps. I would advice, however, to actually reproduce models of the tutorials you start with, even though they might be a repetition of the Winter Scene for some part. The user interface

of Blender (and navigation in it) is quite unnatural and practising this will allow you to navigate and model a lot faster and easier without having to think at every step.
Now, take a look at the content of the book if you want, but then just skip to section 5.1 "Learn to Model".
Beginning Tips will discuss a technique called subsurfing that will return in many other tutorials, so this might be interesting to read. After this, just skip the two "quicky" pages that follow, they are not very useful. Now you can start with the more "practical" tutorials, starting with creating a simple person. There is a large number of other tutorials after this, which usually all teach a new kind of skill, but the results are not all that impressive in general, so below I will simply list all of them with a brief comment on their usefulness or uselessness:

- Modeling a Simple Person (and following detailing): Although the initial result might look very ugly compared to the dolphin for example this tutorial uses a different kind of "basic technique" for modelling and some other useful skills as well.
- Creating a Simple Hat: Yet another technique of creating objects which can be very useful. If your hat didn't look like a hat at the end of the tutorial: neither did mine.
- Putting Hat On Person: Explains how to combine several models from separate files.
- Mountains Out Of Molehills: Useful if you want to create a natural-looking landscape.
- Creating Models With Photo Assistance: Just read the first part and learn how to place pictures on the background (try the pyramid). You should probably not try to replicate the wolf, as the tutorial says, it will take a lot of time.
- Modelling a Gingerbread Man: Repetition of Modelling a Simple Person, so don't bother making it.
- Penguins from spheres: Illustrates the potential of modifying a basic shape (the sphere) to create a model. Not a lot of new thinks here, though it is a nice opportunity to make a cute and good looking penguin.
- Die Another Way: Other way of creating a die than on the Blender website, contains some new techniques such as loop cutting. Just skip the other die tutorials.
- Silver Goblet tutorials: Nothing new.

And that's about as far as I got for the modelling part. I had learned a number of different modelling techniques and wished to explore other things of Blender such as animation as well. The curve and path tutorials might have some techniques useful for other modelling purposes and the texture tutorials will probably explain more about the different kinds of textures Blender has, so feel free to explore them if you wish. My strategy was to simply leave them alone until I really wanted to produce a model of my own and then learn some more about the subjects that I needed to know about should difficulties arise.

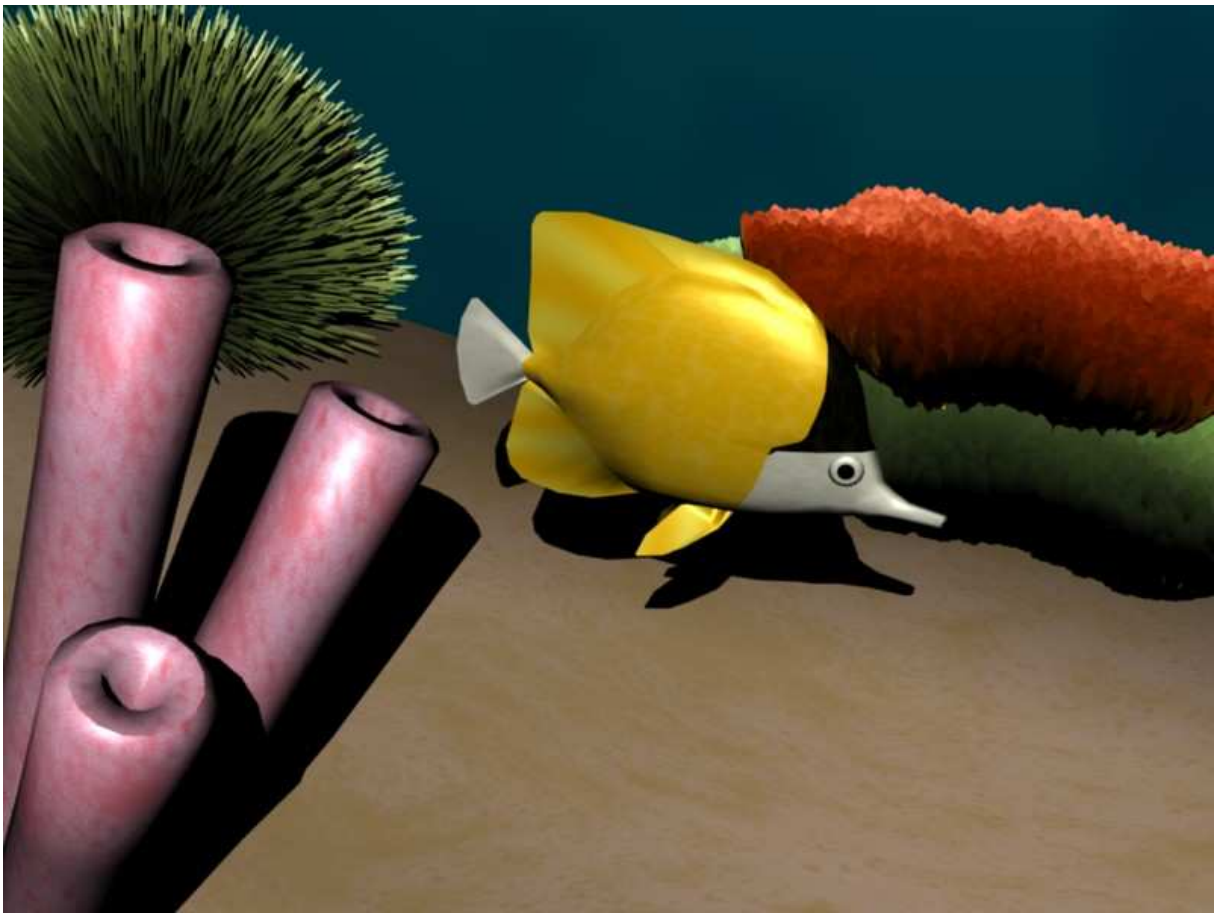
On to animation then? I took the lighting and rendering for granted as well, for the same reason as above. You will also learn some more about rendering in the animation section. This section is claimed to be incomplete and not very thorough and a link to the Blender site (http://www.blender.org/documentation/htmlI/p6390.html) is given with what is supposed to be old but still useful information. I recommend you try and take a look at the first few pages, but I found the information hard to comprehend and continued with the tutorials in the e-book, which turned out to be pretty useful after all.
Just try to follow the tutorials, you can create a bouncing ball to learn about basic animation (you might want to change the output format to be able to render the animation). There is some interesting theory on particle effects and the creation of fur as well.
The part about soft bodies didn't really impress me, the results of the tutorials weren't really what I expected it to be, the movement was a bit odd in my experiments.

For some real animation involving “bones”, go to the Advanced Animation tutorials and follow these, they will provide a decent explanation. (I had to parent the armature to the model however to get it working (as in the “old way”), though the tutorial seems to suggest you can do it without this.)

A last thing is the Blender Game Engine, but the tutorials on this subject are very limited in the e-book (some stuff about objects affected by gravity and a mouse pointer), so take a look if you want, the tutorials shouldn’t take long, but it’s too little to be useable at the moment.

And that’s probably as much as you can get out of the e-book, there are still some miscellaneous tutorials listed at the end. Also, don’t forget to return to the Blender website now that you know the basics to see if you can find anything interesting in the other categories.

Below you can see the result of what I created after following these lessons, I made an animation of it as well, which can be found somewhere at http://www.cs.vu.nl/~eliens/design/game.html.



Tutorials used to create my fish

So let me explain how I created my little fish and its environment and which tutorials were useful for this.
First, I created the fish by deforming and extruding a sphere, in a way similar to Penguins from spheres. Only the eyes are other spheres. I used a photo of a fish as an example and the colours of another fish (which has the same shape too), because the fish on the example picture had a rather difficult striped pattern.
The sand was very easy to create following the Hillside tutorial (the one on the Blender website). The texture is an example of how texture types might look very different if you change the right values. This is a Musgrave texture with the values H: 0, Lacu: 6, Octs: 8 and a somewhat increased NoiseSize.
For the bubbles, follow the Making Fire tutorial in the Animation section. Make sure you've got the appropriate material etc. for the bubbles. (Make a short test animation with just bubbles and an appropriate background colour if you want to get it right. For the movement this is not necessary and pressing Alt-A in the starting frame will suffice.) I forgot to change the look of the bubbles themselves except for the colour before rendering and think the result could have been better.
The green coral on the left was created from half a sphere in a way similar to the Furry tutorial following Making Fire. The other green and red coral were created using the same technique with a deformed circle as a base.
The pink coral is a cylinder which I extruded a couple of times. The hollow effect was inspired by the first Silver Goblet tutorial, which uses a simple technique to make an object hollow. Simply extrude the top layer upwards, scale it down a bit. Move it to the same height as the layer beneath it and finally move the topmost layer further downwards, this will create a thick edge. The material is the same as the sand with different colours.
The animation of the fish was done in a somewhat unconventional way. I started out with a lattice to deform and move the fish, but the movement of individual vertices in the lattice can't be stored in the animation since only rotation, movement and scaling are stored, so I could move and rotate the entire fish, but not the tail and fins.
Using an armature seems to be the most obvious solution, but getting the entire influence region right can be tricky. Weight painting might be the solution for this, but by just scaling the envelop region you will probably get into trouble at some point, moving unwanted vertices or not moving vertices of the child model. A solution I used for my fish is a combination of armature and lattice. The armature moves the fins and tail in the animation (make sure you select all the changed bones before you press I). The bones in the main body (used to connect the fins and tail since the model of the fish can only have one parent) should be scaled down as much as possible so the envelop regions do not affect any vertices of the fins or tail. After this, I used a lattice to control the movement and rotation of the entire fish, which I made the parent of the armature.
For the use of the Lattice in the animation, I consulted Bouncing Ball with Lattice, for the Armature I followed the Advanced Animation tutorials about Armatures.

Some general tips

- Find a way to move vertices, objects, etc. that feels natural/good to you and try to use this. I prefer typing scaling factors, movements etc. to keep exact control, although with more organic things such as my fish above just grabbing and dragging vertices will be more easier. Even if you prefer dragging over typing numbers, just pressing x, y or z to limit rotation or scaling or movement to a certain axis is a lot easier than dragging a small distance and then pressing the middle mouse button.
- As in many other programs, you can use CTRL Z to undo your actions.
- Safe your work often, and possibly under two different names. Moving the wrong vertices for example and being unable to restore them is something that can occur and it's good to have some backup.
- When you start animating, experiment a bit with the different methods and make sure you can make all the different factors change in the animation correctly. Moving individual vertices of a lattice is not something that can be stored in an animation for example (only rotation, scaling and position can be stored and changed during the animation). Using an armature seems to be the solution, but getting the entire influence region right can be tricky. Weight painting might be the solution for this, but by just scaling the envelop region you will probably get into trouble at some point, moving unwanted vertices or not moving vertices of the child model. A solution I used for my fish is a combination of armature and lattice. The armature moves the fins and tail in the animation (make sure you select all the changed bones before you press I). The bones in the main body (used to connect the fins and tail since the model of the fish can only have one parent) should be scaled down as much as possible so the envelop regions do not affect any vertices of the fins or tail. After this, I used a lattice to control the movement and rotation of the entire fish, which I made the parent of the armature.
- There are a lot of different texturing possibilities, experiment with them. Even in one type of texture, it is possible to create totally different effects just by changing the right parameters, just change some numbers, move some sliders and see what it does. (Under Materials, Map Input you can also change the direction of textures like "wood" to some extend by pressing the x, y, z buttons you find there in a little square. Check the Preview in the bottom left to see the result. This is not very straightforward and maybe there is a way to rotate textures which I missed, check some tutorials.)
- Animations will take a long time to render, therefore, try to change some things such as resolution and the number of frames per second, 20 still worked fine for me, so you might even make a small experimental animation with less frames per second to see how it looks. Also, make sure you've got a usable output format. I used Quicktime for my fish animation. In this case, you can also change the quality of the animation. Again, use a small experiment. (Just set end frame to 10 or 20 to see how this looks.) I used very high, which was default, but the result is a long rendering time and a rather large movie file. (Nothing that will take up your whole hard disc, just a few MB, but for use on the web you might want it to be smaller.)

Exporting Models

- Exporting to VRML

Blender has a pretty large number of exporting possibilities and even more plug-ins to extend this number. You can visit http://www.blender.org/download/python-scripts/import-export for a selection of plug-ins, although there are more available on the web and I recommend you check the default export options (File, Export) of Blender first.

Among the export possibilities are a number of VRML (and also VRML2, a.k.a. VRML97) export options as well.
If you open the export menu (File, Export) you will see two default VRML options. One is VRML 1.0, but this one requires older versions of VRML browsers, or at least, this was the case with the latest version of Blaxxun I downloaded. Blender also has VRML97 in it's export list however, which does work and can be used to export models to a wrl file in the blink of an eye. Below, I will briefly discuss some of the limitations of exporting a model to VRML with VRML97 and I'll give one or two small tips as well.

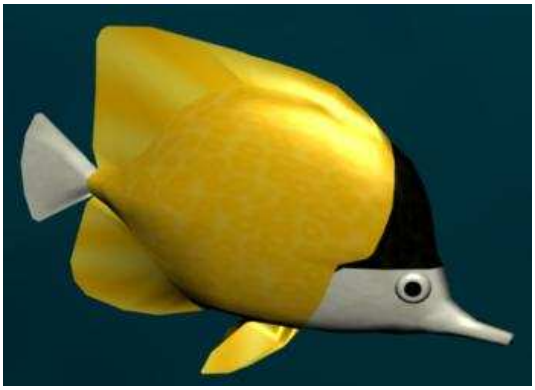
When using VRML97 export you will be asked whether you want to export All Objects, All Objects Compressed or only the Selected Objects. While exporting the whole scene will also include lights these lights are fixed and will (just like fixed lights you create in VRML yourself) only light a certain side of your model. So for a good look at the result of the conversion, you might want to (temporarily) turn on the headlight. The same goes for exporting just the selected objects, which will otherwise be dark if the result of the export is viewed on it's own.
To change the headlight remove the line setting headlight to false or make it a note (place a # before it) if you want to turn the headlight off later.

Exported files will also include a section about ground and sky colour, you might want to remove this if you are going to adjust these colours elsewhere.

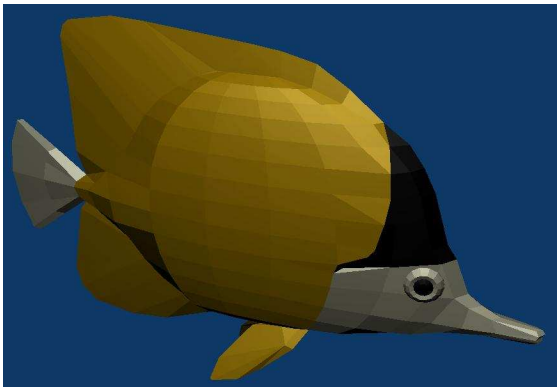
Exporting to VRML using VRML97 will result in some quality losses in general. Things that are not converted are:

- the effects of "Set Smooth"
- textures (only the basic colour of the material is converted)
- animations

Overall, the result will still look nice enough to be appropriate for use in a VRML environment though and will probably look better then things most people can code in VRML itself. Below you can find an example of a fish that I exported to VRML.



Fish in Blender



Fish exported to VRML

If you want to export animations you might want to try installing the BS Exporter, which I didn't get to run at my PC, but should be able to export animations. It can be found at http://www.bitmanagement.de/products/bs_exporter_blender.en.html.