

## Intro Blender Mesh Modeling-Basic Material

By Mr. D at Delta 3D

This Paper is designed to show how to make a basic *Material*, and the applying of a *Textured Material* to a polygon mesh, plus introduction to UV editing. It is somewhat wordy and can be confusing due to what is written in the **Remember This**.

To begin with Blender has 3 main types of Materials.

- 1) Material: properties for colors are set by numbers from a 24 bit RGB palette, and effects such as Specular and Alpha come from an 8 bit Grey scale palette.
- 2) Textured Material: A material where any of the property channels contains a bitmap image.

(**Note:** many artists maybe use to simply referring to a '**Material**' regardless of whether it contains a bitmap or not. However in the OpenGL render system a distinction is made as inclusion and calls to various Dynamic Libraries are required to allow for use of the bitmapped channels. Meaning a programmer needs to know if a Material contains a texture or not for rendering concerns.)

- 3) Shaders: use mathematical equations to derive number used for values.

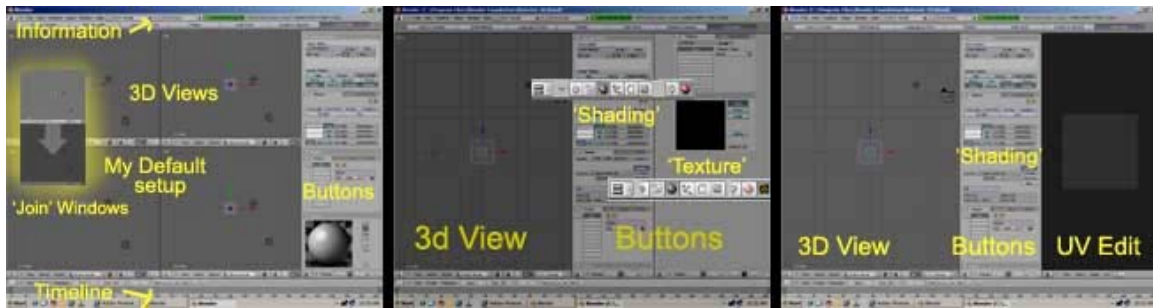
That is a very simplified explanation, and *much more is involved* in making and applying Materials/Textures but sufficient for this paper.

### Read Before Continuing

Blender's background is as an art tool for working with a game engine, and hence handling of Materials in Blender can follow 2 pipelines. One for producing art assets for inclusion in **Blender's Game Engine**, and the other for use as a **stand alone Render Engine** to produce images and/or animations.

So some features such as *Data and Material Blocks* and the attaching of *Material Nodes* are design for use in Game Engines in general, and may not have a function while simply rendering images. If you are making assets for a game try to find out what properties (channels, nodes, data blocks...) can be used in your objects, especially if you do not intend using the Blender Game Engine.

Also take into account Blender uses OpenGL in its Renderer, meaning Shaders and such designed for use in Direct X may need to be rewritten to work with OpenGL. Then again if Blender used Direct X chances are they'd have to pay a licensing fee to Microsoft and you'd not be getting the program for free.



Above is my 'Default' setup for using Blender, which as a heavy user of 3dsMax and Maya is designed to more mimic their UI's. However when I am doing texturing I prefer one big 3D View and 2 Button Windows for getting at material properties and images, with switching one of those to the UV Editor when needed.

Why, because I know I'll be moving back and forth amongst these 'Window Types' so I'd rather to be able to view them all at once then flip back and forth between the various.

If you notice all I really need to do from my Default is 'Join' each pair of the upper and lower 3dViews and switch the now middle window to "Button Type". The timeline stays incase I'm working with an animation as a texture.

**You Do Not have to follow this setup!** It's just how I like to work and I put it up here as a reminder that you can quickly reshape your own UI configuration. Blender in version 2.42a does not have pop up work areas for such items as UV manipulation as you might be use to in Max or Maya. So I find that when working in Blender it's best to lay out your screen ahead of time to take in to consideration windows types you will be using, and how large an area you'd like to use for one.

### Important Note:

If you do try using vertical columns for windows you'll find in some cases not all '**Buttons**' action panels will show. You can remedy this by clicking the **small arrows** that open/close action sets (mesh tools, etc), or if using a **wheel mouse scrolling** the wheel while in a vertical '**Buttons**' window will move the actions set up and down. Also when using the '**UV Editor**' with a wheel mouse **scrolling the wheel zooms in and out** plus **click/hold allows you to move** the work area around.

### MATERIALS – a few things first

Do a *File > New* to get a fresh scene with a Default Cube, the Cube is automatically selected and has a material created for it. Now look to your **Buttons Type- Editing Panel- Materials buttons** for the '*Links and Pipeline*' actions.



1) Notice buttons for 'OB' & 'ME', these two buttons are to set the link between the Mesh and the Material. (OB) means link material data directly to the object, while (ME) means the link is made to a '**Material Data Block**' associated with the Mesh. Observe in the Mesh's name box you see **ME: Cube**, this (ME:) indicates that this texture is assigned to a Material Data Block and not directly to the object itself.



While we are here click between the Material Block (ME) and Object (OB) link icons with your default Cube selected. Notice how with (OB) picked all your actions in the Buttons Type Window disappear. Why? Because the Material was created for the *Material Data Block attached to the Mesh, not the Object*. Now above all you see is **'Link New'**, click and hold the **up/down arrow** and you'll see your material listed there.

Again confusing, can you assign the same Material to *'Link to Object'*? Yes, but you can also create a different Material here for linking. You just need to understand one is directly associated with the object (OB), the other (ME) is associated to the Mesh through the use of a Material Data Block.

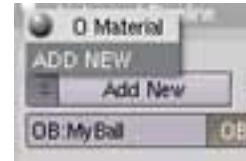
By first selecting (OB) and hitting 'X' icon, then doing the same for (ME) you can remove all Material Links to the Default Cube. Or better yet just delete the Default Cube, also for the rest of this paper you're on your own about *Game Engine-Renderer-Export* concerns for Materials.

### SOME COLOR

Setting Up: Now since it is easier to see certain Material values such as Specular effects with a more rounded shape than on the flat faces of a Cube, Add a Sphere to your scene *Add> Mesh> UVsphere*. 16 or so *Segments* then *Rings* should do fine. Then add some smoothing to your UVsphere; (**3D View Header Menu**) **Edit Mode> Faces** select all faces then in the (**Buttons Window Type**) **Editing Panel** click the **'Smooth'** icon. And finally set your **3D View** window render type to **Shaded**.

Now reset your **Buttons Window** to **'Shading'** Panel –Material sub-Panel, and look at **'Links and Pipeline'**, you'll find nothing shows up when you click either (OB) or (ME) as there is no Material linked to the Sphere. Choose either one as this is just about general Material operations.

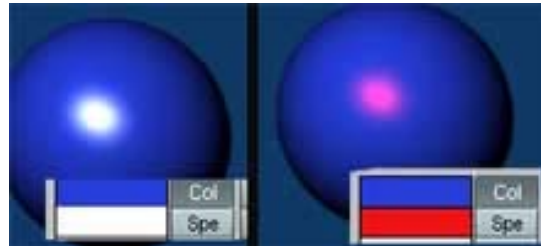
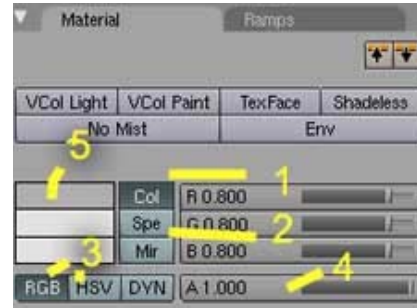
Now 'click/hold' the 'up/down' arrows for 'Add New', you'll see the Default Material in the list but you want to start a new material so select **'ADD NEW'** from list. To get in the habit of renaming your new Material; the Add New input should have switched to something like MA:Material.001, click the input box and come up with your own Material name. When you hit 'Enter' a bunch of new Property/Channels Panels should show up.



A lot of items here will be ignored for much of this paper, but you should slide your cursor over many of the icons to see what they do. Many are for more advanced 'Actions' than are needed for just simple texturing. But after you go through this paper and get the basics explore more actions on your own to see what they do.

### Material/Ramps -Material

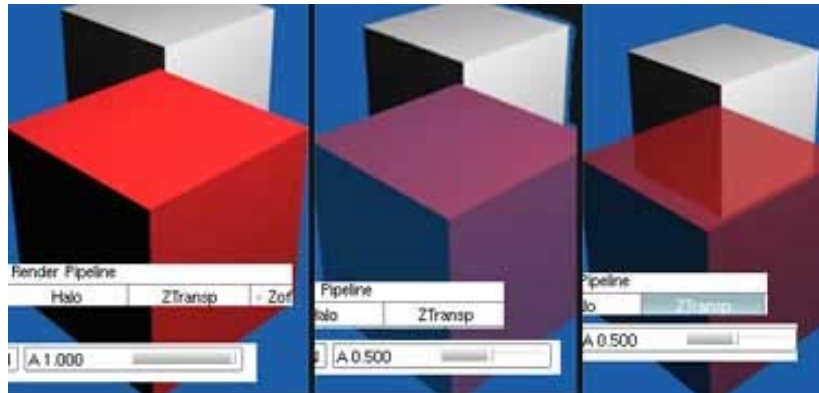
- 1) Col- stands for Color; in this case it's the Diffuse color.
- 2) Spe- stands for Specular color, or what is the color of your specular highlight.
- 3) RGB-HSV click which style of color creation you prefer (Red-Green-Blue or Hue-Saturation-Value). Bit hard to see here but under the yellow 1 & 2 are where the slider value bars are located.
- 4) 'A' means alpha or how transparent/opaque your material, 0-1 with 1 being opaque.
- 5) Shows current color and when clicked on brings up color picker.



### Some fun about Alpha (4)

When using Alpha in Blender you must also use '**Ztransp**' found in the '*Links & Pipeline*'.

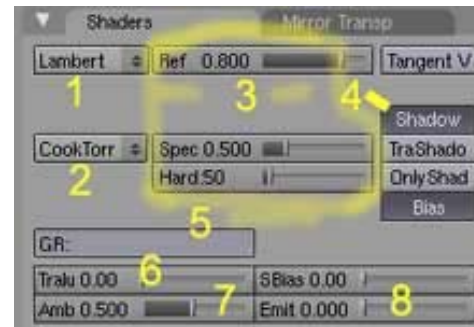
'Ztransp' stands for Z depth Transparency and allows for objects behind the Transparent Material (Z-axis is depth moving away from you) to show



polygonal geometry. Otherwise if not on the Material only become transparent to reveal the background but is still opaque to geometry located behind it. In the above picture the first is **No Ztransp** fully opaque, the second **No Ztransp** but 50% transparent but notice the Cube behind does not show through. Lastly same 50% but with **Ztransp** turned on.

### Shaders/Mirror Transp – Shaders

- 1) Type of Shader used for Difuse
- 2) Type of Shader used for Specular
- 3) Watch these areas change and offer different options available with different Shader Types.  
(Different Shaders use different calculations to depict the ways color and light interact on a material, and may vary in their options to accomplish this.)



- 4) Shadow icon for Material to receive shadows.
- 5) If you have predefined Light Groups you can specify which one alone affects this Material.
- 6) Tralu- Translucency deals with amount of backside shading. Think of looking through a colored liquid, also such items as skin, leaves, and carved jade have translucency.
- 7) Amb- Ambient effect; or how much of the scenes Ambient color is picked up by the Material.
- 8) Emit- Color emitting level or what other programs call Self-Illumination.



Here are lists of what Shader types are available, most will be familiar to users of other 3D programs.

### Preview

Previews current active Material, mainly has icons to choose the Preview display shape.



The 'O' icon at the bottom turns off/on Over Sampling, or the Anti-aliasing of the Preview shape.

So between Material and Shaders Action Areas you can create most basic color Materials you need.

## TEXTURES – 3D Procedural

**Note:** 3D Procedural Textures use Mathematical formulas to produce color patterns such as wood grain, marble, or noise and usually will **Not** work with **most Game Engines**.

For now select your sphere and delete its Link to the Material you made, in 'Buttons-Shading- Link and Pipeline' click the 'X' icon to de-link. Now again 'ADD NEW'.

Next within the 'Buttons Type-Shading Panel' locate the 'Texture' areas for both the sub-categories of **Materials** and **Texture** (you'll want to look at both usually at the same time, which is why I use the UI setup from the beginning of the paper).



Now the 'Materials' area deals with textures assigned to the currently selected Material, the 'Texture' area with textures loaded into the current scene. Both have nothing showing as you have no scene or material textures currently.

For workflow I find it easier to first make/load your Texture into Shading/Texture first, and then have it already available for Shading/Materials so I will proceed in that way.

### Loading a 3D Texture into the Scene:

Go to Buttons- Shading-Texture and 'ADD NEW' which should now give you

- 1) Texture name which you can change. 'X' to delete link to object/mesh data block, (car) autaname, and 'F' save with scene with Texture even if not used by Object/Mesh.
- 2) Texture Type- is where you select the type of texture you which to use. It can be 2D such as image, or 3d like Noise or Marble, also a Plugin which is usually a 3<sup>rd</sup> Party Shader, a default installation usually has no items shown here when selected.
- 3) The darken bar that says 'Tex' indicates it is selected. If you change the name of your Texture it will be reflected here.



- 4) In the *Shading- Material Panel- Texture* two new tabs appear for 'Map Input' and 'Map To'. We will go further into this later.
- 5) Here you can again rename your Texture, use the 'up/down' arrows to select a previously loaded Texture from the list or Add and new one (remember as you are now in the Material Panel this deals with the Texture as relating to the selected Material). You can 'Clear' the Texture from the Material, the number of Objects using the Texture is indicated, plus the (car) icon for auto renaming.
- 6) Your texture is now listed as being part of that Object/Mesh's Material set, with the check mark meaning show/apply the effects of this Texture in the preview window and on Render.

**Note:** Since you had the object/mesh selected when you loaded the Texture, Blender automatically associated that Texture with the Material of the selected Object. You **Do Not** have to have an Object selected to load a Texture. To do so simply have nothing selected when you load the Texture.

### Working With a 3D Procedural Texture

For this part I will be using the **3D Procedural Marble** as the texture. While the work pipeline is pretty much the same for adding the Texture, options available for different 3D Textures can vary widely. After you get the basics of this part go back and try out different 3D Textures like Noise, Wood, and Stucci to see what options they have.

In the *Shading- Texture Panel* click on the 'Up/down' arrows for **Texture Type** and from the list **choose Marble**. A new Panel appears for 'Marble' actions/options and the Preview Panel now displays an image of the Marble Pattern.



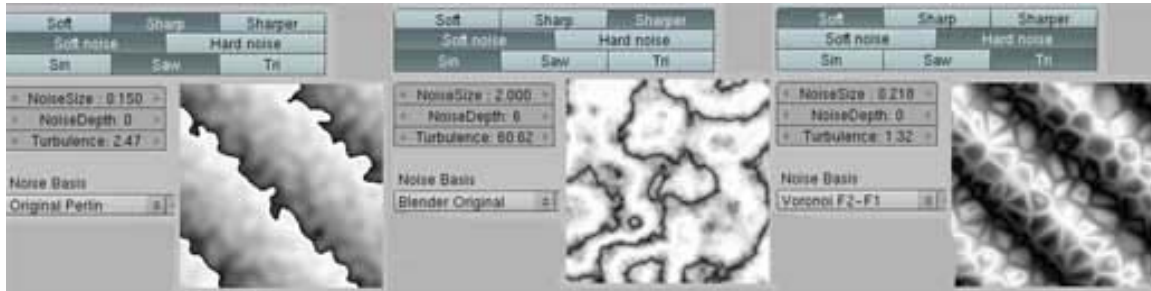
#### Texture Panel

First up are Options for the Marble texture.

- 1) Sharpness of base pattern
- 2) Hardness of Noise engrained in pattern
- 3) Type of wave pattern.
- 4) Controls for manipulating amount of Noise and Turbulence of the of the pattern
- 5) Opens list of type of calculation formula used for pattern, mainly a mixture of Tessellation and Fractal generators.

- 6) Shows Texture Type set to Marble, and you can see I renamed the Texture to Marble.
- 7) Grey scale display of pattern created with current settings.
- 8) Displays active texture for the active **Mat**(erial), **World**(Block), and **Lamp**

### How using different settings can affect the Marble pattern



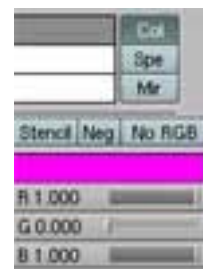
Meanwhile in the *Buttons Type- Shading – Material Panel* it is looking some thing like this.

- 1) How it sees the Marble pattern when included in the Material.
- 2) Renaming has automatically been updated.
- 3) Shows my Color and Specular settings, and how I'm using Lambert and Phong as my Shader Types.



So why pink? Color attributes are not set in the Texture Panel, the preview you see there is based on a grey scale representation of the Marble calculations.

To change the colors you will first open up the “Map To’ tab and in the area, look for a wonderful **magenta colored bar** below an icon call ‘No RGB’. Your Marble Texture is getting its colors from your Col(or) and this No RGB, observe image to the right. Some 3D Procedural Textures when created have no RGB color attached to them, so Blender assigns the color here to the Texture letting you know this.



## MAP TO



Since we are already here let's take a look at the *Map To* tab.

- 1) Texture channels such as Col(or), Spec(ular), Amb(ient), Nor(mal), etc. Slide your cursor over them to find out more.

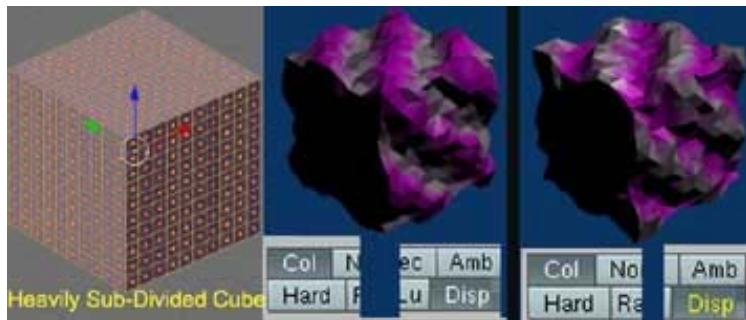
If you're use to **3dsMax** or **Maya** and were wondering where my Map Channels are, this is them, but in Blender there are no buttons to assign a Texture located by the Col(or) box.

In Blender you must Load a Texture in to the scene through the *Buttons Type- Shading-Texture Panel*, then into the associate the Texture to a Material in the *Buttons Type- Shading- Material Panel*. And finally using 'Map To' chose the Channel(s) the Texture is to affect.

More About Channels: In other 3D programs users maybe use to picking a Channel then loading a Texture into it. If another Channel needs to use the same Texture you pick that Channel and reload the Texture into in. In Blender you can load that Texture into what ever Channel you simply by loading it once then selecting as many of the Channels you want in the 'Map To' area (there is of course no effect if the Channel can not make use of the Texture Type). So I could load a bitmap of a shirt and use it in Col(or), Spec(ular), and as my Disp(lacement) map by selecting all three icons here.

Also certain channels that use 8 bit information (2d or 3d Textures) to create they're effect can be set to **Invert** the Texture being used. Click the Channel Icon once to activate it, then **click again to Invert**, and the Channels name should turn Yellow to indicate it is inverted.

Here is a Cube I heavily sub-divided (edges-sub divide multi) then added a Marble Texture which is placed in both Col(or) and Disp(lace) Channels. Note on the second render '**Disp**' is Yellow inverting the effect.

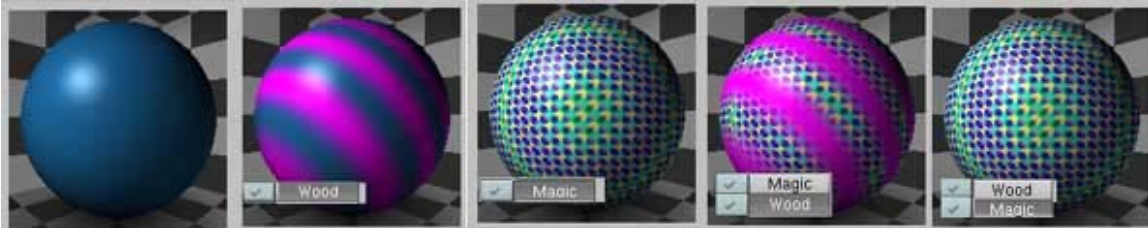


- 2) No RGB color area; use the color box to click open a color picker, or the RGB sliders. The Icons 'Stencil-Neg-No RGB' only have an effect on certain 3d Texture types. In the case of Marble click it and you'll see the two colors assigned reverse.

3) Type of **'Mix'** used in blending the currently selected Texture's Channels with others using that Channel. Try them and watch the Preview window.

4) How much does this texture affect the values for Col(or), Nor(mals), Var(lues), and Disp(lace), or think about this a percentage blend. Also to have an affect here for Col-Nor-Disp the Channel must be activated above.

**Note:** This deals with draw order and **'Mix'**ing; your list of Textures is mixed from Top to Bottom, meaning 1<sup>st</sup> Texture in list is Mixed into the base Material values, and is treated as the new Base color. The results then have the 2<sup>nd</sup> Texture's affects Mixed in, and so on...



Example: 1) Base color value 2) Wood 3D Texture 3) Magic 3D Texture 4) Magic above Wood in Texture list 5) Magic below Wood in Texture list (all use full value affect). Notice for Wood to work it needs to use the Base color for half of its effect, but Magic simply covers everything. So if Magic is first it covers up all and is now the base color Wood works with. But if Magic is second, Wood mixes with the Base color making a new one, but Magic when mixes next it simply covered up this new Base color.

## MAP INPUT

Map Input deals mainly with UVmapping Type and Map position and scale.

- 1) Various Types of sources for UV co-ordinates, with for this paper I only am concern with UV- for user assigned UV's. And Orco or Original UV co-ordinates, which best I can tell is Blender assigns to a newly created mesh a set of UV's as if a Flat project is done from a top down view.
- 2) Texture offset values XYZ.
- 3) Texture Scale Values XYZ.



Remember for Offset and Scale Z only works with 3D Textures, a 2D Texture only has U&V values.

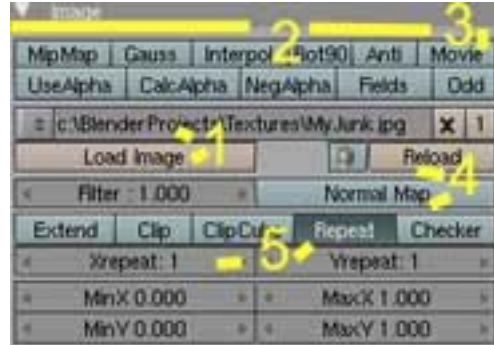
## WORKING WITH A 2D –Bitmap/Image

Much of the above about working with 3D Procedurals is the same for a 2D Bitmap/Image.

First *delete the link* for your current Texture by making sure the Texture box is selected then clicking ‘Clear’ in the *Shading- Materials- Texture*. Now you will need to load up a Bitmap to use, so *Shading- Texture* do an ‘Add New’, but now for your **Texture Type** select **Image**. Two new Panels appear *Image* and *Anim and Movie*.

### Image

- 1) ‘Load Image’ button brings up a standard file locating dialog in one of your other Windows temporarily. Here I’ve already loaded an image so above you see it listed, ‘X’ to delink, and how many in scene users of this image.
- 2) Up here are ‘Image Options’ such as automatic MipMap creation, UseAlpha of image if it’s 32 bit, and Fields for handling video fields. By default Blender usually has MipMap on, however MipMaps are used in Games, and if your not creating this mesh as a game asset you can turn it off.
- 3) Take note of this icon ‘Movie’; if you are going to use a supported video format like and .avi as your image, this is used to tell Blender at render to extract the frames of the animation as single images.
- 4) ‘Reload’ image button, plus the ‘Normal Map’ button, understand that this button does Not cause Blender to render out a normal map. What it does is allows Blender to treat the *Image Loaded as a Normal Map*, meaning you can load up a 8-bit grey scale or 24-bit image in and Blender will calculate it for use as if it were a Normal Map.
- 5) ‘Repeat’ button to turn on image repeating and input areas for X/Y repeat values.

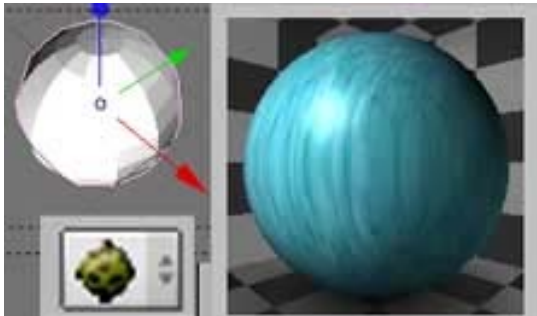


### Anim and Movie

- 1) If no Animation File loaded all you normally see is a small arrow here, but if one is loaded the arrow becomes a button showing how many frames are in the animation.
- 2) ‘Frames:’ is number of frames you want to use from the animation, ‘Offset:’ offsets number of 1<sup>st</sup> movie frame. The arrow button simply places the whole number of animation frames over.
- 3) ‘Fie/Ima’ sets number of fields rendered per frame, *Not on Output Render* but number of fields used by the animation file and again deals with a video source.



- 4) **'StartFr(ame):** starting frame to use, and **Len(ght):** how many frames to use.
- 5) **'Cyclic'** if the animation you are going to render has more frames than the animation used for the Texture, this Cycles the Image animation.



So go ahead and for now load up a **Bitmap Image** of your choice and set your 3Dview for Textured Render Mode. And you may notice something, your texture does not show.

Do a full Render and there it is. Why? While the Bitmap is now associated with the Material, it is not associated with the 3D View Window. The 3D View is using its own Display Buffer and your Texture must

be loaded there for it to show. Those use to using 3dsMax you will know doing this as 'Show Map in View Port'. But no quick button to do this in Blender.

**Note:** The 3D View is using a Scanline render and is not Raytracing, so while a Bitmap used as a Col(or) can be display, certain other Channels and their effects can not be seen in a 3D View Window currently with 2.42. A number of these channels do not show in most other 3D programs either, so it is not a drawback of using Blender.

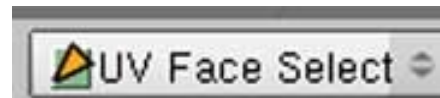
### GETTING IT TO SHOW UP IN 3D VIEW

**Repeat:** What you have to understand here is that Blender assigned the Image to the Texture, and the Texture is assigned to the Object (do a Full Render and check). However the 3D View is designed for modeling and editing Objects, and depending on what type of editing your doing you may wish to display a different Image (Color, Normal, Alpha...).

To those ends in 3D View you can for your Editing purposes have different Images, even other than those used in your Material, and these are **Not assigned** at an *Object level*, but at a **Face level**.

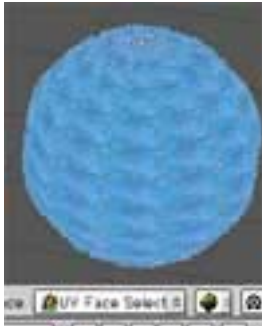
So to see your texture in the 3D View you need to tell Blender your using this texture on these Faces.

Pick a 3D Viewport and set it's Shading to Textured, and then go into **UV Face Select Mode**. Now select all the **Faces** of your Mesh



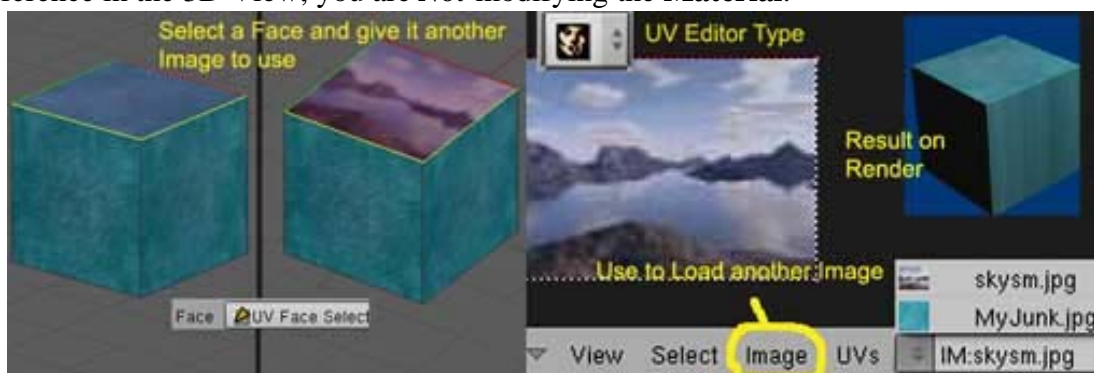
You'll now want to go to a **UV/Image Editor Window Type** and here assign the **Image** used by your **Material** to the selected. It should show in the loaded texture list.





And here it is, but remember this is your **3D View display**, not the material you will be **Full Rendering**.

Now try this, while still in **UV Face Select Mode** pick a **Face** from your **Mesh** (switched to Cube in Picture for ease of viewing). Then in the **UV Editor Window** load up another **Image** which can be done with the 'Image' hotspot. Next using the up/down arrows open up the **Image List** pick a different one for this **Face**, and it should appear on that **Face** in the **3D View**. But try a render and behold no second texture, because in adding that second texture it was just for reference in the 3D View; you are **Not** modifying the **Material**.



**Note:** There are other ways to achieve this display in Blender, and can be found in Tutorials found on the Web. But to begin with use this methods to help you understand what is happening inside Blender.

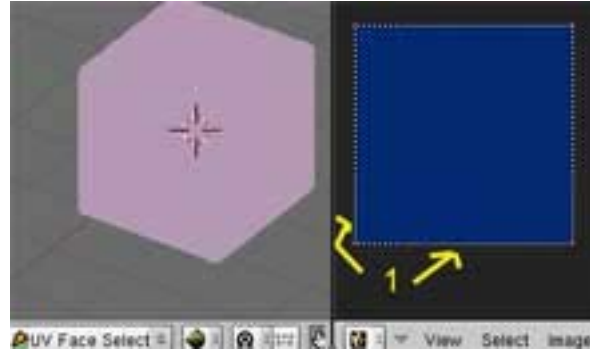
## REALLY – REALLY BASICS ON UV EDITING

This portion touches on how to do simple assigning and manipulating of UV coordinates in Blender.

Let's make it simpler by using a Cube so in **Object Mode** pick your Sphere and delete it. Now add a Cube from the **Info Window** by using **Add> Mesh> Cube** (recall it is created at the location of your **3d/Marking Cursor** and aligned to the view). Then in your **Buttons Window> Shading> Material** you'll see no Material either OB or ME is assigned to this object. So in the **Links and Pipeline> Link to Object** area click the 'List Arrows' next to Add New, here your previously created Material is included. To save time just select it for assignment to your Cube.

Now setup a **UV/Image Editor Window Type**, you do UV Editing in that Window. As you may notice that as before your Cube though it has a texture it does not show in 3D View, and you'll have to reselect the **Faces** and use the **UV/Image Editor** to assign the texture to those Faces for display.

So set your '3D View Mode' to **UV Face Select** and select *all the Faces* of your Cube, but then PAUSE and LOOK at your UV/Image Editor. There you see a dark blue grid, but around the outside are dotted lines and small purple dots.



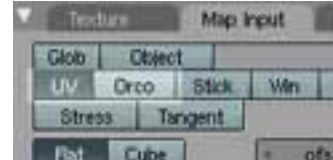
These represent your Cube's current UV assignments, with the dotted lines are Edges and the purple dots are Vertices.

(Note: UV {and W} correspond to the vertices on your Mesh as to XY{and Z}. Does UVW have any special meaning, yes, it means XYZ were taken and since they correspond to XYZ the next 3 letters down in the Alphabet were used. XYZ are letters normally used to denote the position of a point in 3D space, and used in Geometry to define area's and shapes. Which as you probably guessed it is what they are being used for in 3D Modeling, those points now being Vertices).

Now in the **UV/Image Editor** use the Image List found there to assign your Material's Image for display in the 3D View.

### My UV's

On default creation of a Mesh, Blender assigns it an original set of UV's. You however will not want to use those, but will want to create your own. So for the moment you must go back into the **Buttons > Shading > Material Panel**, to the **Tab for 'Map Input'** from where you setup where you are getting the UV's you will be using for the **Mesh**. Default at Creation is for 'Orco' meaning Original Co-ordinates as assigned by Blender. But you want to lay out your own UV's so you need to switch over to the 'UV' button.

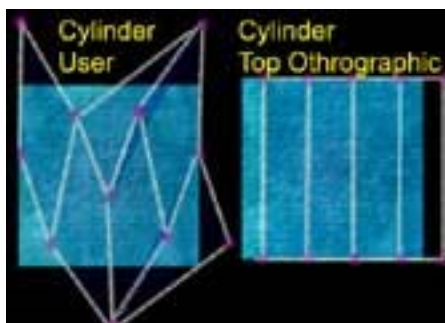


Going back to the **UV/Image Editor** nothing seems to change, that is because Blender has simply *moved the Original Co-ordinates* over to your UV's. Make sure you're still

UV Calculation	Project From View	Reset 1/1
Cube Projection	Project from View 1/1	Reset 1/2
Cylinder from View	Project from View 1/2	Reset 1/4
Sphere from View	Project from View 1/4	Reset 1/8
Unwrap	Project from View 1/8	

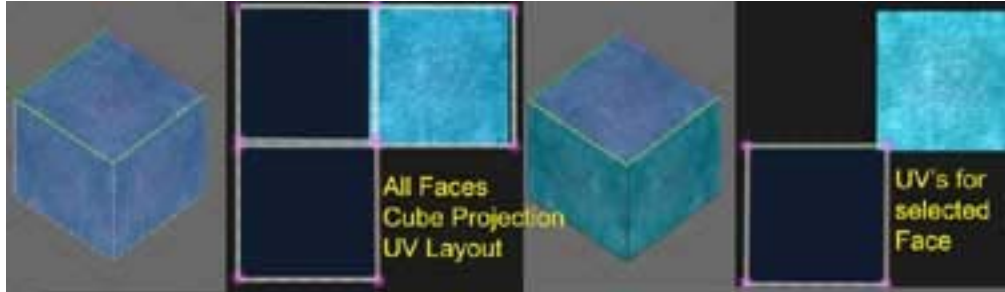
in **UV Editing Mode** and select all the *Faces* again, go to **Header Bar > Face > Unwrap UV's**, or 'U' key, or use the **HotBox**. Up pops the **UV Calculation List**

Go ahead and try Cube-Cylinder-Sphere UV calculations from different 3dViews, and take note in your UV/Image Editor the affect view can have on how UV's get laid out.

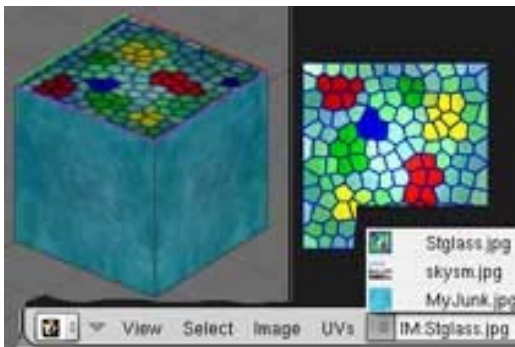


Depending on how your Model is aligned and the angle of your faces, certain views work better when laying out your UV's.

For now just pick a simple **Cube Projection**, then just pick one Cube Face which you will modify, and look to your **UV/Image Editor** to see how that particular Face's UV's are setup.



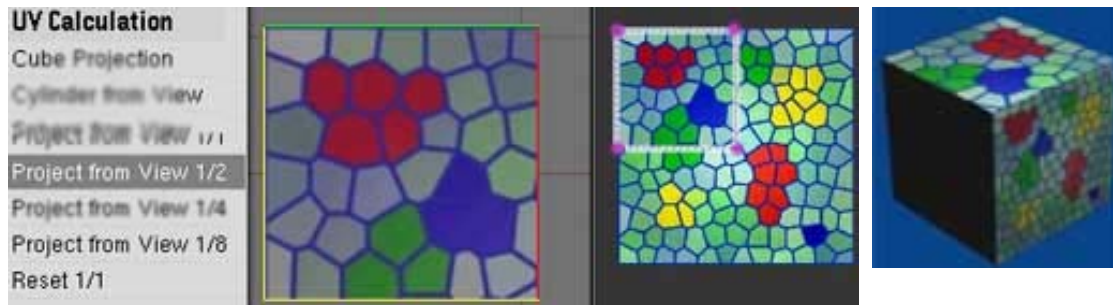
Now the texture I was using was a little busy, and it would be harder to notice if I were to tile it. So I went ahead and loaded another texture so you can tell the effect more easily. This is where if you were modeling you might load a different **Image** then the Material's, just to make sure your mapping is correct. Just follow the steps from earlier.



OK top face selected so for ease I'm going to do my new mapping from a top down view. So go to a **Top** view and again bring up '**UV Calculations**' by **Menu-HotBox- 'u' key**.

Now do a '**Projection from View 1/2**' and check out the results in the '**Editor**'. Why does it look that way, because a 1/2 means half of X and half of Y.

Replaced Material to show.



Material changed to show Mapping changes.

To edit UV's you select



specific simply them in

the **UV/Image Editor**. A selected UV turns '**Yellow**', and the standard selection of click-'shift' click for multi selection- 'b' for marquee select works in the '**Editor**'. Also remember it **Face(s)** not just **Face**.

## 2 UV CALCULATION ITEMS TO NOTE:

1) Unwrap tells Blender to Unwrap and Objects UV's and place them in the *UV/Image Editor*. You can build a Mesh and put UV's on it with out immediately editing them, so when you want to work on the UV editing later you use this to load the UV's previous assigned into the Editor.

2) When you do a '**Project from View**' with 1/1 or 1/2... Blender takes the max X and max Y values that the **Face(s)** selected have and the project just covers that area.

However if just '**Project from View**' with **no value**, the projection covers the 3D View's Window area of view.

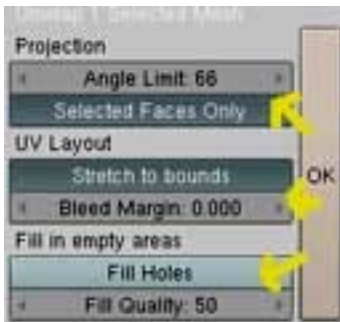
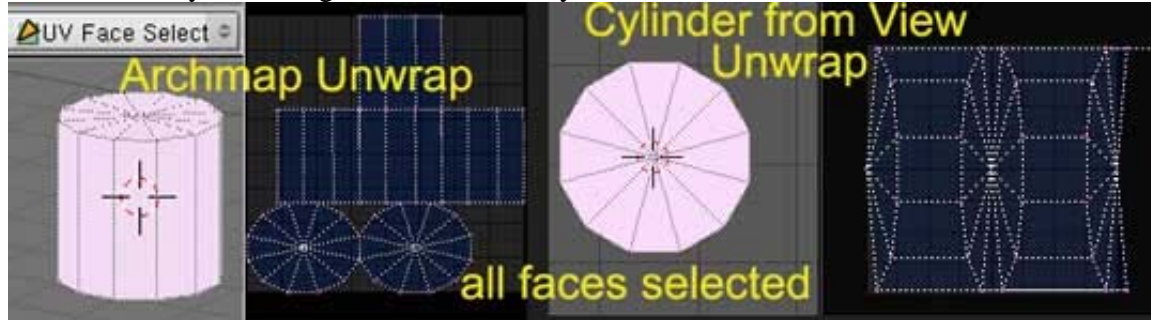
## IMPORTANT TO REMEMBER

- a) When working with 2d Materials you first have to load up and image in *Shading-Texture*. That then gets associated in *Shading-Materials*.
- b) Blender assigns default Original Co-ordinates (Orco) but to create and Manipulate UV's you need to switch where Blender is looking for its UV's in the **ButtonsType- Shading- Materials-Map Input tab**. This must be set to **UV**.
- c) To see your Textured Materials in Blender you must first in **3D View** be in *UV Select Mode* and pick the Faces of your object. You then Use the **UV/Image Editor** to specify **which Image** to display on those **Faces**.

## 2 Useful Scripts Found in UV/Image Editor> UV's

When you click the '**UV's**' hotspot towards the top you will find two Python Scripts that may prove useful to you.

- 1) Archimap UV Projection Unwrapper: Will attempt to automatically lay out your UV's by flattening out the *Faces* of your Mesh.



If you don't like how Archmap laid out your UV's try tweaking the values for Angle Limit (angle of face normal), the Bleed Margin, and Fill Quality (try's to better fill the whole image).

- 2) Save UV Face Layout save your UV unwrap out as a .tga bitmap for taking into a paint program like Photoshop.



**Size** – Image is square so only 1 value (try using powers of 8)

**Wire** – thickness of line used in image to show edges.

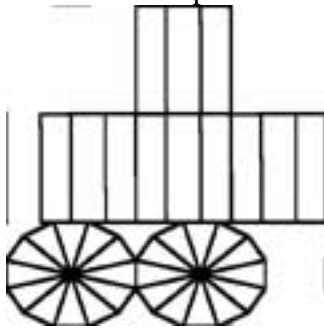
**Wrap** – wrap to image size.

**All Faces** – clicked all faces used, if not only selected faces.

**Ob(ject)** – use object name as basis for image name.

**Edit/Editor:** - select to automatically go to an external image editor (Photoshop, Painter...etc), input space to provide path to editor.

These two scripts should be by default in Blender 2.42a



Results of Save UV Face Layout